DOCUMENT RESUME

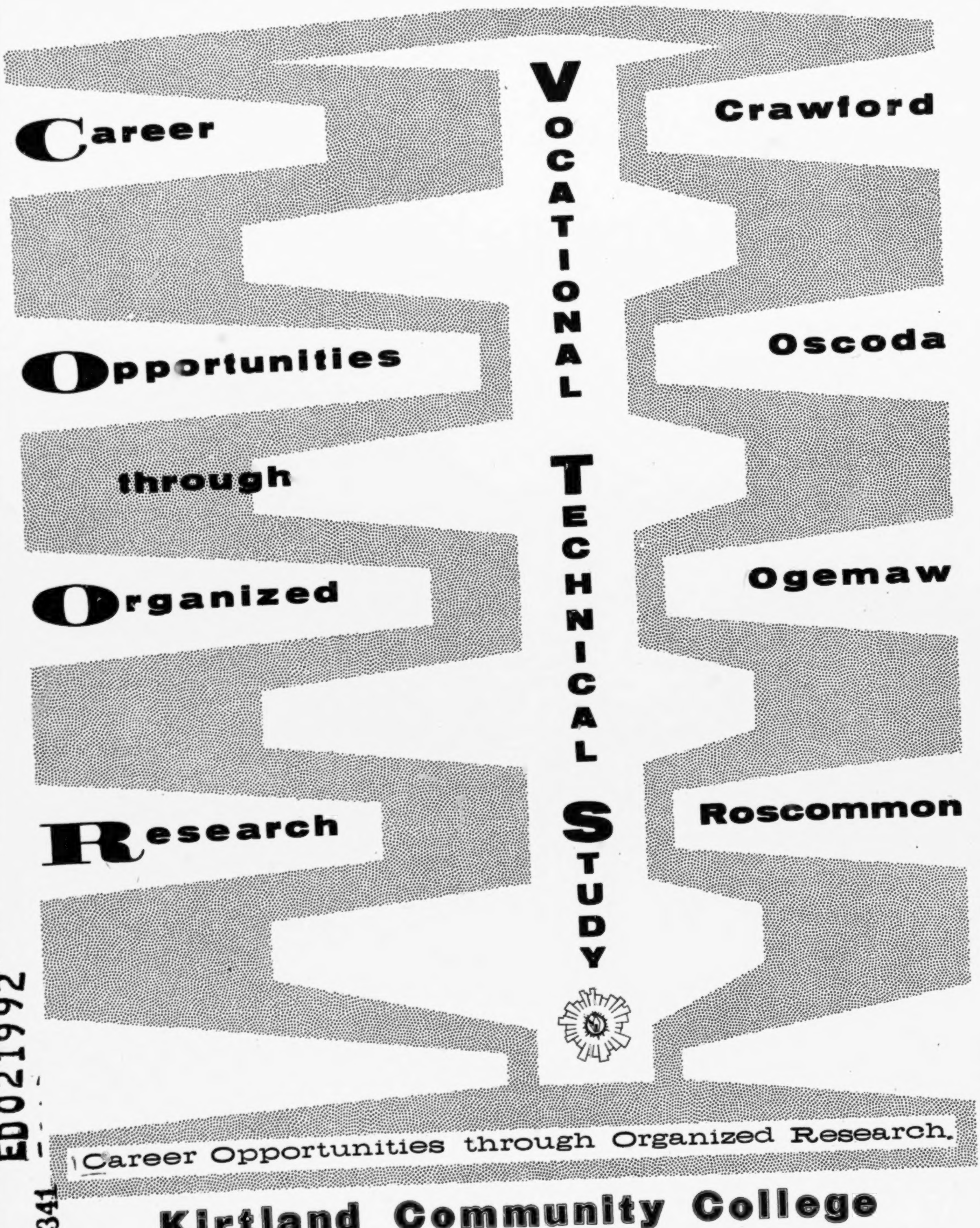
ED 021 992 VT 004 341

CAREER OPPORTUNITIES THROUGH ORGANIZED RESEARCH.

Bush-Goenner Associates, Mount Pleasant, Mich.; Kirtland Community Coll., Roscommon, Mich.
Pub Date Aug 67
Note-95p.
EDRS Price MF-$0.50 HC-$3.88
Descriptors-AREA VOCATIONAL SCHOOLS, CAREER CHOICE, *COMMUNITY COLLEGES, COMMUNITY EDUCATION, CURRICULUM PLANNING, EDUCATIONAL CHANGE, EDUCATIONAL FINANCE, EDUCATIONAL INTEREST, *EDUCATIONAL NEEDS, HIGH SCHOOLS, HIGH SCHOOL STUDENTS, INTERAGENCY COOPERATION, LEADERSHIP, *MANPOWER NEEDS, OCCUPATIONAL SURVEYS, PHYSICAL FACILITIES, SCHOOL ORGANIZATION, *SCHOOL ROLE, STUDENT INTERESTS, TECHNICAL EDUCATION, *VOCATIONAL EDUCATION, WORK ATTITUDES
Identifiers-Michigan, COOR Intermediate School District, Kirtland Community College

A study was undertaken to improve the occupational training programs for youth and adults in the four counties of Crawford, Ogemaw, Oscoda, and Roscommon, Michigan, which make up the COOR Intermediate School District and the geographical area of Kirtland Community College. A rationale, based upon literature in the field, was developed for vocational education at each level of the educational system. A student occupational inventory determined high school students' career interests in eight occupational categories. Of these students, 46 percent expressed interest in community college or vocational-technical school. Upon the basis of this interest, Kirtland Community College and the high schools might consider programs for drafting, chemical technology, surveying, electronic technology, art, journalism, auto mechanics, cosmetology, scretarial, distribution, law officer training, carpentry, and computer operation. The jobs mentioned most often on 704 questionnaire returns (78 percent) from businesses were retail salespeople, waiters, bus drivers, bookkeepers, janitors, cashiers, nurse aides, auto mechanics, assemblers, and secretaries. Some recommendations were to (1) provide an area vocational-technical program, (2) provide programs cooperatively between the high schools and the community colleges, (3) emphasize work attitude development. (JM)

c.1



Career
Opportunities
through
Organized
Research

Vocational Technical Study

Crawford

Oscoda

Ogemaw

Roscommon

Career Opportunities through Organized Research.

Kirtland Community College

ED021992
VT004341

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
OFFICE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL OFFICE OF EDUCATION POSITION OR POLICY.

KIRTLAND COMMUNITY COLLEGE

Roscommon, Michigan

Mr. Lloyd N. VanBuskirk
President

BOARD OF TRUSTEES

Gilbert Stewart - Chairman
Harold Ferris - Vice President
William Eichler - Secretary-Treasurer
Charles Oppy, M. D.
Warren Bontrager, M. D.
Robert Bovee

IMPROVING VOCATIONAL-TECHNICAL EDUCATION
IN
CRAWFORD, OGEMAW, OSCODA, AND ROSCOMMON COUNTIES

SPONSORS

Mio Public School District
Grayling Public School District
Houghton Lake Public School District
West Branch-Rose City Public School District
Roscommon Public School District
Fairview Public School District
Kirtland Community College

STUDY DIRECTORS

Dr. Donald O. Bush, Professor of Education, Central Michigan U. - Director
Dr. Roger J. Goenner, Professor of Education, Central Michigan U.

CONSULTANTS

Dr. Stanley L. Brooks, Professor of Industrial Education, New York State University, Buffalo, New York
Mr. Roland W. Frank, Assistant Professor of Education, Western Michigan University, Kalamazoo, Michigan

RESEARCHERS

Mr. Mahlon Gascho, Fairview, Michigan
Mr. Gordon Harrington, Rose City, Michigan
Mr. Don Lance, Higgins Lake, Michigan
Mr. J. D. McMurphy, West Branch, Michigan
Mr. Robert Prause, Grayling, Michigan
Mr. James Selinski, Mio, Michigan
Mr. Fred Sible, Houghton Lake, Michigan
Mr. James Strohmer, West Branch, Michigan

DEPARTMENT OF EDUCATION ADVISORS

Mr. Leon J. Alger
Mr. Philip T. Bailey
Mr. Robert Pangman

SCHOOL DISTRICT SUPERINTENDENTS

Mr. O.E. Hecksel, Fairview
Mr. E.L. Hulce, Roscommon
Mr. James McGuire, Houghton Lake
Mr. Russell Spalding, Mio
Mr. Joseph Stripe, Grayling
Mr. Chester Surline, West Branch-Rose City

COOR INTERMEDIATE SCHOOL DISTRICT

Mr. Basil Godbold, Superintendent

HIGH SCHOOL PRINCIPALS

Mr. Elmer Fentin - Grayling
Mr. Edward Johnson - Roscommon
Mr. Donald Harrington - Fairview
Mr. Charles R. Batway - Mio
Mr. Gayle B. Saxton - Houghton Lake
Mr. Hollis Miner - West Branch
Mr. Gordon Harrington - Rose City

EDITOR

Judith Noble

BUSH - GOENNER ASSOCIATES
Box 253
Mt. Pleasant, Michigan
August, 1967

FOREWORD

Most Americans are well aware of the importance of industry as a dynamic force in our complex society. The technological developments of the past decades have materially affected all of us. Great changes have occurred in transportation, communication, medicine, agriculture etc. Our dynamic and affluent society has resulted from the efforts of people individually and collectively to become and remain occupationally competent. The challenge for American education today is to continue to help provide the programs and the incentives for youth and adults necessary to maintain and expand our industrial-technical complex. It is with these thoughts in mind that this study was undertaken; it was designed to improve the occupational training programs for the youth and the adults in the four counties of Crawford, Ogemaw, Oscoda, and Roscommon. These four counties also make up the COOR Intermediate School District and represent the geographical area of the Kirtland Community College.

The vocational-techncial study was sponsored by the Kirtland Community College Board and they in turn engaged Bush-Goenner Associates, Mt. Pleasant, Michigan, to perform the necessary researches and prepare the written report. The following data interpretations, conclusions, and recommendations are the result of the researches conducted during the past eight months and represent the thinking of the research team. It is hoped that the material presented will prove to be helpful to the people, boards, and the concerned administrators in improving occupational training in the COOR area.

Acknowledgment and gratitude are expressed to the many who participated in this project. Special appreciation is extended to the owners, managers, and personnel directors of the various businesses who completed the business and industry questionnaire and to the school officials who generously gave of their time when the local school facilities and programs were reviewed.

Bush-Goenner Associates

TABLE OF CONTENTS

CHAPTER PAGE

I. BACKGROUND AND RATIONALE 1

Introduction 1
  Societal Forces: Implications for the Future 2
Vocational Education 5
  Career Education 7
  Junior High School Level 9
  High School Level 10
The Community Education Concept 13
Area Vocational-Technical Education in Michigan 13
  The Area Program Concept 13
  The Role of Educational Institutions In Vocational and Technical Education 14
    The K-12 District 14
    The Secondary Area Vocational Center 14
    The Community College 14
    The Intermediate School Districts 15
    The State Department of Education 15
  Organizational Patterns for Area Vocational-Technical Education Programs 15
  Curriculum Planning 16

II. EDUCATIONAL OPPORTUNITIES 17

Purposes of Education 17
Role of Educational Agencies 20
The K-12 Schools in the COOR Area 22
Student Interest Inventory 22
Summary 32

III. BUSINESS AND INDUSTRY 33

Business and Training Needs Survey 33
Extent of the Study 34
Number of Employees 34
Employment by Occupation and Sex 34
Current Vacancies 36
Replacement and Expansion Needs 37
Is the Job Hard to Fill? 38
Usual Recruitment Sources 39
Educational Preference 41
Company Training Programs 42
Interest In Additional Employee Training 43
Interest In Participating In Planning Programs 44
Most Often Mentioned Jobs 44
Summary 44

CHAPTER PAGE

IV. FINANCING 46

Determining Costs 46

V. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS 49

Need for School in Area 49
Business-Industry Needs 51
Future Employment Needs 52
Need for Cooperation 55
Organization 57
Financial Needs 57
Recommendations 59

BIBLIOGRAPHY 62

APPENDIX 66

Appendix A: A Vertically Integrated Occupational Curriculum for Schools in Michigan 67
Appendix B: Occupation Guide 72
Appendix C: Business and Training Needs Survey 80
Appendix D: Volunteers for Citizens Advisory Committee 83

LIST OF TABLES

TABLE PAGE

I High School Course Offerings By Grade and Total Students 23
II Engineering and Scientific 25
III Medical and Health 26
IV Farming and Horticulture 26
V Writing, Art, Administration 27
VI Personal Services 28
VII Machine, Bench, and Structural Trades 28
VIII Clerical and Sales 29
IX Skilled Trades 30
X Technical-Vocational Interested Students Summarized by Occupational Category, Grades 9-11, Inclusive 31
XI High School Students' Choice of School 31
XII Summary of Student Interest by Career Titles 32
XIII Number of Employees 34
XIV Occupational Employment by Sex and Total 35
XV Number of Current Vacancies 36
XVI Estimated Number of Employees Needed in Next Five Years 37
XVII Educational Preference by Occupation 41
XVIII Do You Have Your Own Training Program? 42
XIX Employers Wanting Area School for Training 43
XX Most Often Mentioned Jobs in Each Category 45
XXI Per Pupil Costs 48

LIST OF FIGURES

FIGURE PAGE

1 Not Much Future for the Unskilled 17
2 Number Now Employed 35
3 Current Vacancies 36
4 Estimated Number of Employees Needed in Next Five Years for Expansion and Replacement 37
5 Estimated Additional Summer Employees Needed 38
6 Is the Job Hard to Fill? 39
7 Usual Recruitment Sources 39
8 Usual Recruitment Sources by Occupation 40
9 Educational Preference 41
10 Do You Have Your Own Training Program? 42
11 Employers Wanting Area School for Training 43

LIST OF CHARTS

CHART PAGE

1 Organizing to Implement the Community Education Concept 12
2 Who Is Going to Do What in 1980? 53
3 Kindred Careers in Clerical Sales 54
4 Organization Plan 57

LIST OF GRAPHS

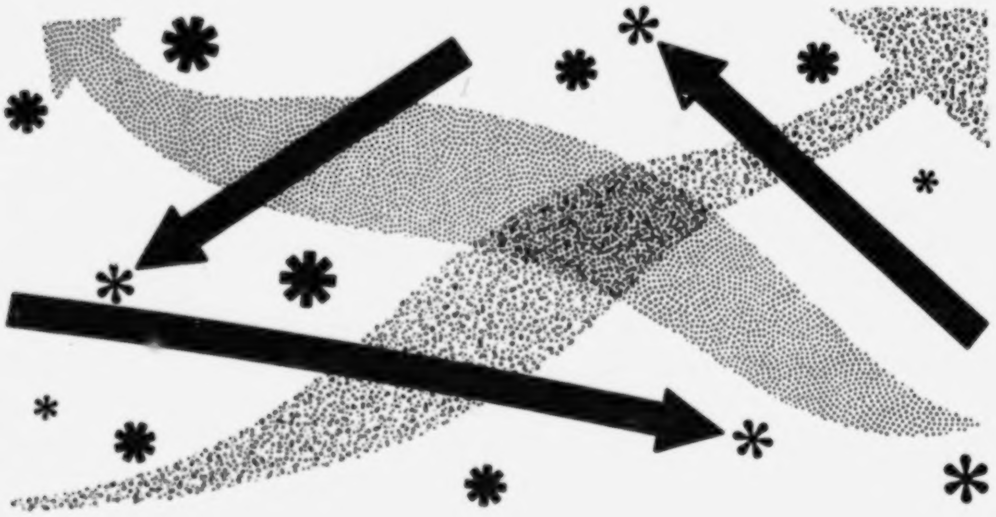
GRAPH PAGE

I Business-Industry Need and Student Interest 51
II Need for Continuing Education by Business-Industry 52

AREA TECHNICAL·VOCATIONAL EDUCATION PROGRAMS

MARKETABLE SKILLS

CHAPTER 1



BACKGROUND AND RATIONALE

Introduction

> All forms of life are dangerous. Man is the most dangerous form of all because only man commands the ultimate power to destroy the planet. Contrariwise, only man has the capacity consciously to manage the environment so as to prolong and improve the conditions of life. -- Bebout --

In an age of cautious optimism it seems appropriate to once again examine the societal forces that are affecting the ability of individuals to determine which of John Bebout's two choices they shall make -- education or vegetation.

The community college, the youngest of our institutions of higher education, is the product of the twentieth century with some of its accompanying unique societal forces. It would seem reasonable to assume that some of these societal forces have had an impact upon the Kirtland Community College district.

In an analysis of an existing or proposed institution it is necessary to examine the purpose of that institution. Community colleges have been, historically, assigned four primary functions: (1) vocational-technical programs; (2) preparatory education; (3) community service; and (4) transfer programs.

A brief description of the importance of each of these functions might serve as a basis for understanding the relationship between the community college and a changing society.

(1) The important function of the community college is providing preparation for career occupation or a vocational-technical education. If a student is not intent on a four-year program and a baccalaureate degree his major emphasis is likely to be on developing occupational competence.

James W. Reynolds has stated the primary aim of this portion of the community college curriculum in the following manner. "The vocational segment of the junior college curriculum is responsible for imparting skills and understandings necessary for the student who plans to enter full-time employment after leaving the junior college."[1] Only recently has any area of higher education directly concerned itself with this aspect of education. A major reason for the community college becoming involved in vocational-technical education was its ability to provide instruction in the immediate vicinity and under the aegis of a higher educational institution.

---

[1] Reynolds, James W., The Junior Colleges, New York, The Center for Applied Research in Education, Inc., 1965, p. 36.

(2) The second area and closely related to the first, called preparatory education, involves the community college in upgrading a student at any age in order that he may qualify educationally to enter the previously mentioned curriculum. As Medsher states: "More than three-fourths of the administrators interviewed expressed the belief that the junior college, particularly the public junior college, has no alternative but to provide ample opportunity for the removal of deficiencies."[2]

(3) The third function, and to the community the most important, is community service which in a very real sense encompasses all of the programs offered by the community college. Lamar Johnson and others would agree, however, that the term "community college" would be defined as those functions a community college performs above and beyond regularly scheduled day and evening classes. As Johnson states:

> These services include lectures and forums, concerts and other cultural events; seminars, institutes and conferences; staff assistance on civic projects and community developments; sponsorship of community cultural and recreational programs; use of college staff and students as speakers and performers; the use of college facilities by community groups; special radio and television programs; and extensive public relations activities.[3]

(4) If the student is not concerned about immediate introduction to employment and his ultimate goal is a career which requires more than the general occupational training of a local college then it is necessary to transfer to a senior college. The transfer program, that curriculum which qualifies a student to transfer at the upper division level in a four-year institution, is the move coming to the community college. William Rainey Harper, President of the University of Chicago, was the first to suggest the separation of the first two years of under-graduate education from the parent institution. Harper suggested that the freshman and sophomore years might be fused with the existing framework of public K-12 educational programs.

The transfer program, while historically the basis for the organization of community college districts, has not served the greatest percentage of students. Leland Medsher in his book, The Junior College: Progress and Prospect, points to the relatively low per cent of students actually transferring to a four-year institution.

> In fact, there is no benchwork in American higher education that provides a standard of how many people should attend college for two years or less or for more than two years. The junior college may well perform a maximum service if only a third of its students transfer.[4]

Thus, in the implementation of these four functions the campus and concerns of the community college encompass the entire geographical area of the district as well as the entire population.

Societal Forces: Implications for the Future

We now turn our attention to a brief overview of the current societal forces affecting the operation of the community college. We can define six areas of concern in a changing society that affect the operation of the community college. The six areas are: (1) increasing technological change, (2) the population explosion, (3) the changing role of women, (4) the drive for upward mobility, (5) increasing affluence and the desire to maintain it, and (6) the increasing complexities of social issues.

---

[2] Medsher, Leland, The Junior College: Progress and Prospect, New York, McGraw-Hill Book Company, Inc., 1960, p. 67.

[3] Johnson, B. Lamar, Starting A Community Junior College, Washington, D.C., American Association of Junior Colleges, 1964, Chapter 7.

[4] Medsher, op. cit., p. 112.

The first of these factors, increasing technological change, would appear to be a relatively common occurance and some might say "this is not a new problem." Granted this is not a new problem, but the implications for the community college are quite clear. It is estimated that by 1975-1980 less than six per cent will be employed in unskilled jobs and farm laborers. Contrast this to 1910 when over 45 per cent of the work force was employed in these two areas. On the other hand in 1910 just over ten per cent of the work force was classified as skilled and semi-skilled while by 1980 this will jump to more than thirty-five per cent. Kenneth Boulding, a University of Michigan economist, has noted: "In a society like ours, where a significant portion of resources will be devoted to improving technology, it will be very surprising if technology does not improve in the sense that it increases human productivity. On the other hand, we cannot predict the exact forms which this improvement will take, simply because again, if we could predict it we would have it now."[5]

Technology has and will continue to provide man with new benefits if man will have the educational opportunities to use this new technology. The community college will play an increasingly important role in three ways. First, the community college will provide the necessary educational offerings which will allow modern man to use the new technology. Second, the community college will offer to a local unit higher education that can provide job upgrading - in-service education - for the adult population of the district. Third, the community college will be the initial contact unit of higher education for the training of the creators of new knowledge - the scientists and engineers.

The second point, one of which we are all very much aware, is the population explosion. The 1960 U.S. Census showed a growth pattern in the United States from 1900 of 424.9%. During the same period Michigan grew from 2,420,982 in 1900 to 7,823,194 in 1960, a 223.1% increase.[6] The Kirtland Community College district has, itself, experienced population growth. The effects of this population explosion, along with an increasing number of people with the desire for further and more specialized education, has helped create the need for the community college.

The third point for consideration is the changing role of women. The old cliche "a woman's place is in the home" is apparently dead. Simpson stated the role of women in the labor force in the following manner:

> Another important trend is the ever-increasing number of women entering the labor force. Among teen-agers, about 30 per cent of the girls are in the labor force; among those ages 20-24, about 45 per cent. After this age, women often disappear from the labor force for a period of time. They get married and begin rearing a family. But later, at 30-35-40, large numbers of them return to the labor force.
>
> We guess that by 1970, 55 women out of every 100 (married, widowed, single or divorced) in the age group 45 to 55 will be trying to earn a living. Even at age 55 to 65, there will be about 45 in 100. This means a persistent increase in the number of women seeking jobs.[7]

The implications of this point, for the community college, are clear. As job requirements increase and new technology demands new proficiency, the community college will be asked to supply educational preparation necessary to permit women to obtain employment.

---

[5] Morphet, Edgar L. and Ryan, Charles O., Prospective Changes in Society by 1980, Denver, Designing Education for the Future: An Eight-State Project, 1966, p. 206.

[6] U.S. Bureau of the Census, "Our Growing Population," Graphic Pamphlets, G.P. 60-1, U.S. Government Printing Office, Washington, D.C., 1961, pp. 2 and 8.

[7] Simpson, Hoke S., editor, The Changing American Population, New York, Institute of Life Insurance, 1962, p. 17.

Points number four and five should be discussed together, as they go hand-in-hand in their influence on the development of community colleges.

Upward mobility and the society of affluence have combined to produce major changes in the educational emphasis in American society. Before analyzing the implications of these two factors for the community college it is necessary to present a brief analysis of the inherent problems. The following is quoted from the recent innovative report, Prospective Changes in Society by 1980.

> The twentieth century has seen the emergence of a new kind of human society in the United States and a few other parts of the world - the affluent society. This is a society that has learned the skills of production and has distributed its economic benefits to most of its people. In the affluent society nobody need go hungry or ill-clad because of scarcity of food and clothing. The affluent society does not persuade its members to restrain their consumption for the common good; it persuades them to consume more so that the economy will thrive.
>
> Thus far the affluent societies are islands of wealth in a world of poverty, and they face great ethical and political difficulties in relating themselves creatively to a world of want. One of the urgent ethical issues of the years ahead will concern the responsibility of the rich nations toward the poor nations.
>
> If poverty within the affluent society raises disturbing ethical issues, affluence itself raises others. Even if the American society succeeds in eliminating severe poverty, the ethical issues of affluence will remain. Affluence means the obsolescence of the so-called "Protestant ethic" -the ethic of hard work, saving, no borrowing, cultivation of deferred enjoyment, economic sanctions against the lazy and unlucky. To the extent that the disciplines of a society are built upon an obsolescent ethic, the passing of the ethic disturbs the society. Some see the loss of all discipline. Others see the invitation to develop a discipline more appropriate to a technological world.
>
> The affluent society offers the opportunity for an ethic that knows how to enjoy leisure and to provide opportunity for all its citizens. Its threat is the situation of satiety - starvation - where a people satiated with consumer goods become starved for satisfactions, to the extent sometimes that even sex becomes a commodity for the acquisitive consumer, totally unrelated to traditional virtues of fidelity and shared experience. One of the curious phenomena of our society is the interaction of the "Playboy ethic" of affluent hedonism with the calls for sacrifice in war, the Peace Corps, and the struggle for civil rights.[8]

Thus, our community colleges are caught up in another type of change - social change. The role of the community college in alleviating poverty, providing a way to develop a meaningful self, and operating in the framework of a changing ethic will be of considerable importance to the future community it will serve.

This brings us to our last point - the increasing complexities of social issues. As already discussed the community college of the future must deal with change - social and technological. As a symbol of higher education in the district the community college must provide the necessary leadership to enable its students and communities to make these changes. We are no longer concerned with the establishment of a utopia - an idea. We know that we have problems and that we must solve these problems. However, we must realize that with the solution to each problem we create new problems. This is evidenced in the civil rights movement, in the drive of the Roman Catholic Church to change, and in the decision to create community colleges. We also know that there will be controversy in the definition of the problems and the proposed solutions. We cannot expect this to decline - it will increase.

---

[8] Morphet, op. cit. pp. 246-247.

Thus, given the four basic functions of the community college and some of the societal forces affecting the operation of the community college, we now turn our attention to the problems of organizing a new community college which will enable it to be flexible enough to cope with change in occupational education.

Vocational Education

There is no clear cut line of demarkation between the subject matter of vocational and general education. In fact, much of that which we could call vocational is found in so-called general education areas. The true difference between them though is not based on quantity or quality but rather on objectives.

That which is truly vocational for one individual may be of a general educational orientation for another person. For example, an electrical service repairman needs to know Ohm's Law in order to perform successfully in his job. Now his need for this knowledge is vocational -- however, all high school students, who take physics, will surely study about Ohm's Law. In this instance Ohm's Law is general education.

Another example could be drawn from the area of business education where a student who takes a first year typing course, which is available to all students, achieves a highly proficient typing skill and upon graduation is able to sell this typing skill to a businessman. Here a general education course has been turned into a vocational pursuit. Needless to say, there are many other examples of comparable situations, however the local community cannot depend upon the accidental transfer of high school education to the occupational reality of every day work after graduation.

One must also remember that in the COOR Area only 35% of the parents had completed high school, according to the final report of the Citizens Advisory Committee.[9] This suggests that a sizeable portion of the population will probably need and want a locally available occupational training facility. This program of vocational-technical education would serve in three dimensions. First, it would educate today's youth so that they would possess a marketable skill upon completion of the program; second, it would provide opportunities for adult workers to up-grade existing occupational skills; and third, it would provide programs which would help adult workers learn new occupational skills.

Based upon the foregoing thoughts it would be appropriate to define vocational education and look briefly at the characteristics of this program.

Vocational education has come to be accepted as that phase of education designed to improve the proficiency of an individual for and/or in a specific occupation.

J. Fred Ingram, former President of the American Vocational Association points out that, "the real characteristics of vocational education, which set it distinctly apart from general education, are the following:

1. Education is vocational when it is designed specifically to improve the efficiency of an individual in a specific occupation - either as preparation for employment or supplementary to the duties of employed workers.

2. Education is vocational when it is taught and learned in its relations and applications to the actual work of a specific occupation.

---

[9] Final Report of the Feasibility of a Community College for the Area Intermediate School Districts of Crawford-Ogemaw-Oscoda-Roscommon, Office of Community College Cooperation, Michigan State University, April, 1965, p. 28.

3. Education is vocational when it is of more value to one who will pursue or is pursuing a specific occupation than to anyone else.

4. Education is vocational when it is so timed that the learner needs it and will apply it to useful and productive work in a specific occupation at the time it is learned.

5. Education is vocational when the necessary skills and knowledge of a specific occupation are being taught and learned in their practical and proper relationships.[10]

Mr. Ingram concluded by saying, "Some may call this a narrow view of vocational education, and perhaps it may be. But the modern concept holds that the specific purpose of vocational education is to fit individuals for useful employment. It recognizes that vocational education is intended to prepare people for initial employment and to provide training supplementary to the daily work of employed workers. If these are the purposes and intent of vocational education, there can be no other definition of its content.

Actually, this concept is as broad as are the needs of the individual in becoming an efficient worker in his chosen occupation. Under this concept, the content of a vocational course for an individual learning an occupation can and should include anything and everything, from any and every source, which will add specifically to his proficiency in a saleable occupation. Such a course may include some physics, some English, some mathematics, some chemistry or biology, if and as such information is needed to make him a more efficient worker. Only that information should be incorporated which can be shown to make a direct and specific contribution to increasing the efficiency of the learner in a chosen occupation. Furthermore, it should be presented and taught in its specific relationships and applications to job performances in a specific occupation."[11]

Within the lifetime of many of us, it was possible for young people to select and prepare for homemaking responsibilities and for public vocational instruction. The home and family played a greater part in training for job entrance. The school year was shorter, thus allowing more time for part time employment-on-the-job training.

The trend in today's society is to keep youth in school as long as possible; and occupations now require more complex skills and a much more sophisticated technical and scientific knowledge. In fact, it is impractical, if not impossible, for today's youth to properly prepare themselves for a productive life and for satisfactory wage-earning employment ---- unless the secondary schools offer some assistance and unless there is opportunity for post high school vocational-technical education to assist in up-grading worker skills or helping a displaced worker to learn new skills.

It would seem that the foregoing statement identifies the position of the four county COOR area as they seek to provide these opportunities for their people.

In a pamphlet entitled Vocational Education for American Youth, The American Vocational Association offers some thoughts that may help as one looks at the vocational program in the high school. They say high school curriculums must change with the changing industrial, economic, and social order if the schools are intended to serve. High schools, therefore, must render an effective educational service to all youth and not just to a few who will continue thier education in institutions of higher learning. The school have as much responsibility for helping prepare the boy who is going to be an auto mechanic to meet his specific problems through vocational education as they have for helping the boy who is going to be a teacher to meet his needs through academic courses for college entrance.

---

[10] Ingram, J. Fred, "What Makes Education Vocational?" American School Board Journal, Nov., 1956, Bruce Publishing Co.

[11] Ingram, op. cit. p. 45

Vocational education in the public schools serves most effectively those students who will enter certain pursuits in agriculture, distribution, homemaking, business, and industry. It cannot and is not intended to serve all youth.

Vocational courses should not be considered a 'dumping ground' for retarded students and disciplinary cases. These pupils need special attention, but vocational classes are not the real solution. All students in a specific occupational preparatory class must meet the intelligence, aptitude, and physical requirements necessary for employment in the occupation for which the instruction is organized. The school system should not guide pupils into vocational courses for which the youth are unsuited and unqualified. At the other extreme, it should not be taken for granted that all students of exceptional mentality should enter occupations demanding a four-year liberal arts college education. There is a bright future for talented youth in skilled and technical occupations, calling for a high degree of intelligence which is developed through preparatory and advanced vocational training. Students who fail in or rebel at general education courses often succeed in vocational classes, not because of the intelligence level involved, but because their natural capacity and interest are in other than academic lines. Pupils in all vocational classes must have the intelligence and ability to profit from the instruction given for the particular occupation.

One of the most valuable functions of vocational education in the secondary schools is the discovery and development of natural ability. The basic purpose of, and the primary justification for, vocational education is that of assisting selected individuals to increase their usefulness through greater proficiency in a suitable occupation. The key to effective programs of vocational education is selection, and the answer to the question 'Who should take vocational courses?' may be found through efficient, functional, and practical vocational guidance services.

Career Education. One of the most successful ways of providing a major portion of this efficient, functional and practical guidance for career selection is by offering the youth a strong Occupational Program in grades seven through twelve. Career experiences are an integral part of each child's general education if he is to begin to understand the industrial-technological business-service culture in which he lives. To function intelligently he must gain insight into the impact of automation on society, know the fundamental principles of industrial processes and be cognizant of the utilization of human resources. The educated man of today must understand and make judgments regarding the effect of all elements of his environment...and an effective industrial-business education program will provide the unique opportunities for students to participate in representative experiences in industrial-technological skills and processes to help develop this educated man. These experiences will assist in the discovery and development of personal aptitude, interests, creative technical abilities, self-reliance, sound judgment and resourcefulness through problem solving and self-expression in a laboratory environment related to the technology of industry.

An area which is probably even more important than the elementary technical skills which may be developed in an occupational program is the development of social understandings which are appropriate for employability. Reports of many occupational studies suggest that over half of those who lose their jobs lose them for some other reason than lack of skill or technical knowledge. Such studies further indicate that lack of proper attitudes and social understandings is an important cause of disemployment. Knowing and being able to practice these social understandings is especially important for the young worker who enters the labor market at an early age and quite naturally finds much competition for the available jobs.

The industrial arts program can start at grade seven or eight (depending upon the school's organizational structure) and assist the young people to develop an appreciation and respect for the "dignity of work and labor." Too many times a student leaving high school feels that he must have the best job in the community. If the teacher does an adequate job, he will have led the students under his direction to realize that a community requires many kinds and levels of work and service. All of them are essential, and each job or service is a vital factor in the functioning of business and industry in each locality.

Another part of this overall concept of the respect for the "dignity of work" is that of working safely, working accurately, working in a manner that reduces waste both in relation to materials and to the breakdown of tools and equipment. It is a simple fact that the worker who does not cooperate and work to his capacity will not last long on any job. Occupational courses can lend themselves well to teaching worker-management relationships by providing situations that are similar to those found in business and industry. And of course teachers must believe that a person will be better able to hold a job if he has been taught the importance of getting along with people in a working situation. Cooperative planning, construction, laboratory administration and housekeeping all afford an opportunity for practice in learning the cooperative skills of working together.

To provide a sound program of occupational education, clear realistic objectives are essential. The following four statements of purpose are unique to vocational arts. These statements were issued in 1963 by the American Council of Industrial Arts Supervisors.

> To develop in each student an insight and understanding of industry and its place in our society. Since industry is a constructive, dynamic force in the world today, it is the responsibility of the school to provide opportunities for each student to understand this force better. Industrial arts provides significant learning experiences relating to industry in which students acquire skill in performance and knowledge of principles and theory through study and application.
>
> To discover and develop student talents in industrial-technical fields. Students have a diversity of talents. The school's responsibility is to assist students in discovering and developing these talents. It is the responsibility of industrial arts education to identify special talents in industrial-technical fields.
>
> To develop problem-solving abilities related to the materials, processes, and products of industry. The problem-solving approach in industrial arts involves creative thinking, and gives the student opportunity to apply principles of planning and design, construction techniques, industrial processes, scientific principles, and mathematical computations to the solutions of problems.
>
> To develop in each student skill in the safe use of tools and machines. Industrial arts provides planning, construction, and production activities which enables students to acquire industrial-technical skills. These activities offer opportunities to develop tool and machine skills commensurate with the mental and physical maturity of the student.
>
> While these four objectives are considered basic for industrial arts, supplementary objectives may be developed for elementary school, junior high school, high school, and adult programs, as well as special programs for the gifted, the slow learner, and the physically handicapped.[12]

If our contemporary industrial-technical complex is concerned with making a profit, with purchasing raw materials, production facilities, product design, advertising, management, quality control, the job schedule, marketing, pay scale, the production period, engineering, labor unions, strikes, reduced work weeks, etc., and if our teachers subscribe to the concept that occupational education is an attempt to interpret the contemporary industrial-technological scene to our young people, then there is no room in our classrooms and laboratories for the 19th century European Village Trade program which is so much in evidence across the nation today.

---

[12] Industrial Arts Education - Purposes- Program - Facilities - Instruction, American Council of Industrial Arts Supervisors of The American Industrial Arts Association, McKnight and McKnight Publishing Co., Bloomington, Illinois, 1963, pp. 4-5.

The technology of materials must stand out as the boy works with wood or metal. Little is done with iron or steel today. Rather, precise alloys are developed to meet precise requirements. Line and mass productions are in many cases passe for some industries because cybernation -machines running machines- is the contemporary industrial-technical way of working. These concepts can be initiated in the 7th grade with average or below youngsters, and carried on through the 12th grade and if the boy chooses to develop a vocational skill in a post high school program, his foundation will have been thoroughly appropriate for understanding today's industrial culture.[13]

We should look for a moment at the new power plants for planes, trains and automobiles. These will directly affect the lives of tomorrow's people so we must teach about them rather than the "old fashioned" combustion engine. But what about the technology of this and other new engines? Is this the sole province of the science teacher? This is the subject matter of industrial education and it must be taught because it is a part of the future.

What about the coal industry, the rubber industry, the textile industry or one of our fastest growing industries, the plastics industry? We cannot ignore them and continue to have each boy "make" a wood project to take home. And this then is the boy's basis for understanding his industrial-technological culture.

What then should an occupational education program offer? The following description of the broad offerings at the junior and senior high school level are taken from a previously cited source prepared by the American Council of Industrial Arts Supervisors. It is open-ended enough so that the schools in the COOR area could easily adopt a similar approach in programming.

Junior High School Level

Occupational education should be an integral and required part of the total program of education for all youth at the junior high level (grades seven and eight of elementary schools and grades seven, eight, and nine of junior high schools). Students at this grade level are usually guided through a series of exploratory experiences in a variety of occupational areas. Included in a recommended program are power mechanics, drafting, electricity-electronics, graphic arts, metal working, woodworking, plastics, ceramics, business, retailing, sales etc.

In a large school each of these areas may be taught as a separate course. The facilities call for general shops, laboratories and interim experiences in a number of closely allied activities in a broad career approach. For example, a metalworking course includes art metal, casting, finishing, forging, heat treating, metal machining, metal spinning, sheet metal, and welding. Industrial arts may be taught in a comprehensive general shop in schools with a small enrollment. A comprehensive general shop includes activities in two or more areas such as drafting, electricity-electronics, metalworking, and woodworking. In a large school where several shops are available, opportunities could be provided for students to spend from a half semester to a full semester in each shop area. In the small schools, where a comprehensive general shop is used, a student should be given a variety of experiences in several areas. The same principle applies in business.

Special emphasis should be given in grades seven, eight, and nine to help students discover and develop their aptitudes, abilities, and interests. Provision should be made for the development of a variety of skills and for opportunities for creative activities. An understanding of the technological world and its effect upon our society is important. Activities involving the practical application of mathematics, science, language arts, and social studies are inherent in all occupational endeavors. Safe practices in the use and care of materials, tools, and equipment are important. The ability to select, purchase, use, maintain, and service equipment is to be stressed. The educational program assists in developing a degree of proficiency in a variety of basic mechanical skills.

---

[13] For an excellent explanation of this approach to teaching industrial arts refer to: Teaching Industry Through Production. George R. Keane. American Industrial Arts Association, 1959.

High School Level

Students at the high school level (grades nine through twelve and ten through twelve) may elect an occupational program goal to be pursued during their entire high school career. These students may have completed the basic courses offered at the junior high level. If they have not had this opportunity, the high school program should provide for these basic courses. As an example the high school industrial arts courses should include the following areas: automotive mechanics or power mechanics, drafting, electricity-electronics, graphic arts, metalworking, woodworking, plastics and ceramics. In the business area a similar selection of courses would be provided.

The well rounded high school curriculum includes opportunities in areas not provided at the junior high school level, plus opportunities for advanced experiences in areas previously studied. The curriculum provides opportunities for students to have comprehensive and enriching experiences that will enable them to acquire basic knowledges, understandings, and skills in the fundamental principles, techniques, procedures, and processes used in industry or business.

A detailed study of one or more local or national industries gives students insights into research and experimentation; mass production principles; importance of interchangeable parts; quality control; plant organization; personnel; time study, materials handling devices; automation; importance of jigs and fixtures; the need for detailed drawings; experimental prototypes of products; and the constant effort of industry to improve quality, increase production, and reduce costs.

It is recommended that students have experiences in each of the occupational areas available in the school before they are encouraged to select an area for concentration.

The advanced techniques developed in the high school laboratories should approach the procedures used in business and industry. At this level emphasis is given to occupational practices and information relating to the specific career area. In this way advanced course work is effective occupational guidance, and for some students it provides opportunity for more advanced experiences within a chosen occupational area.

The high school student, regardless of his major, should have the opportunity to elect occupational courses. The elective courses provide unequaled and challenging opportunities for scientifically or mathematically oriented students to work and experiment with new materials, processes, ideas, and designs.

Again as an example high school industrial arts offers creative opportunities involving an understanding of the principles of design, an application of orderly planning, judgment in the selection and use of materials, and skills in the use of tools and machines.

The high school student is a consumer of goods and services and is interested in specific consumer information that is inherent in the industrial arts program. Through this program the student can acquire information that will assist him in being a contributing member of our society and can have experiences that will enable him to recognize good craftsmanship and well-designed commercial products.

In addition, industrial arts electives offer an unequaled opportunity for other students to develop leisure time interests and skills so necessary for a well-rounded life in an era of short work weeks and time saving devices.

If the secondary school program of the COOR area can provide a strong occupational curriculum for its youth it will in great measure be aiding the young people to make much wiser career decisions in the fields of industrial-technical and business education.

In 1964 the American Council on Education published a document which is vitally concerned with the topic at hand. Man, Education and Work, Post Secondary Vocational and Technical Education, speaks on such topics as The New Technology, Manpower Needs, Major Issues in Vocational Technical Education and then it winds up with a series of conclusions and recommendations. Each of the fifteen recommendations will be of interest to program planners but number seven is of specific concern now and it reads:

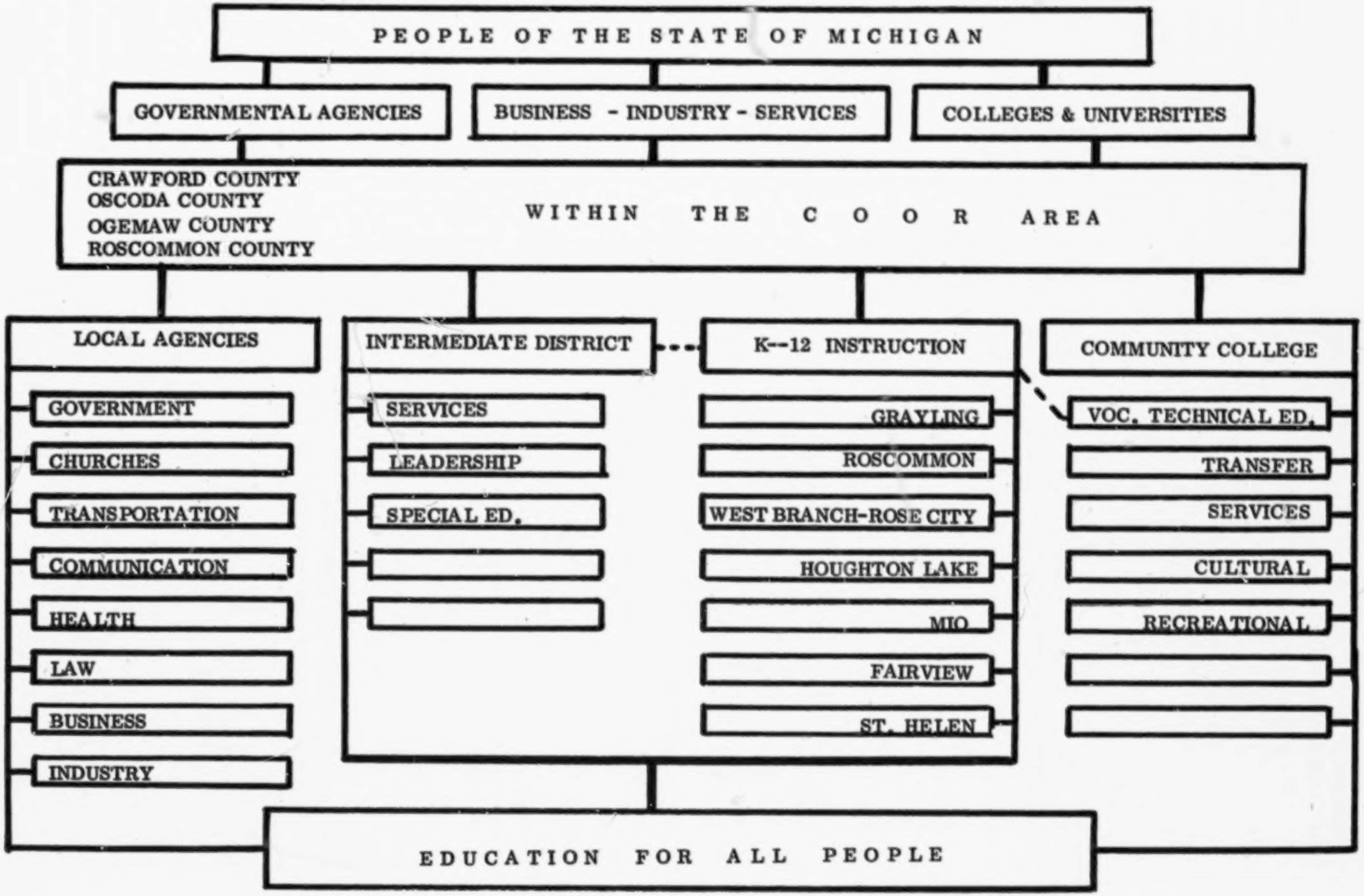
> High schools should establish vocational education programs which offer all youth leaving high school marketable occupational skills or preparation for further occupational education.
>
> For the majority of youth, the high school experience is the basis for entry into the work world. A massive increase in vocational education in the high schools of the nation is necessary. The efforts thus far, which find only 5 per cent of the high school graduates completing a vocational program, are completely inadequate. While the need for post-high-school occupational education is obvious, this study has also indicated that needs for vocational education in the high schools are equally great. The need to combat the dropout problems, the lack of work skills manifested by thousands of adults, and the need for more general education for all occupations combine to underscore the high schools' important role in today's technological society.
>
> While this study is not directly concerned with secondary education, it is obvious that post secondary institutions can be no stronger than those at the elementary and secondary levels, where the educational foundation is laid. The successful development of educational programs at the lower educational levels must, therefore, become of greater concern to higher education. There is a crying need for greater understanding of the problems of secondary education on the part of the higher education community.
>
> Programs preparing youth to continue vocational and technical education after high school graduation should be of the same quality and availability as the college-preparatory curricula now available.
>
> Vocational education should be available for students whose special needs require entry job skills for immediate job placement in work requiring the application of simple, specific knowledge.
>
> A greatly increased work-study program should be developed for many students who need work experience and job satisfaction to continue their high school education.
>
> The use of high school plant and facilities during the vacation periods could be one way of starting occupational programs for dropouts, undereducated youth, and adults.
>
> The high school should assume responsibility for entry job placement and future educational assignment for all youth enrolled in high school, whether they leave school or graduate.
>
> The high school should become the community institution providing educational guidance, job placement assistance, and counseling services for all high school age youth in the school district, whether they are in school attendance full time or not.[14]

---

[14] Venn, Grant, Man, Education and Work-Post Secondary Vocational and Technical Education, American Council on Education, Washington, D.C., 1965, pp. 166-168.

Chart I

Organizing to Implement the Community Education Concept


PEOPLE OF THE STATE OF MICHIGAN
GOVERNMENTAL AGENCIES
BUSINESS - INDUSTRY - SERVICES
COLLEGES & UNIVERSITIES
CRAWFORD COUNTY
OSCODA COUNTY
OGEMAW COUNTY
ROSCOMMON COUNTY
WITHIN THE COOR AREA
LOCAL AGENCIES
GOVERNMENT
CHURCHES
TRANSPORTATION
COMMUNICATION
HEALTH
LAW
BUSINESS
INDUSTRY
INTERMEDIATE DISTRICT
SERVICES
LEADERSHIP
SPECIAL ED.
K--12 INSTRUCTION
GRAYLING
ROSCOMMON
WEST BRANCH-ROSE CITY
HOUGHTON LAKE
MIO
FAIRVIEW
ST. HELEN
COMMUNITY COLLEGE
VOC. TECHNICAL ED.
TRANSFER
SERVICES
CULTURAL
RECREATIONAL
EDUCATION FOR ALL PEOPLE

The Community Education Concept

The Community Education Concept is illustrated in the preceeding Chart I. This indicates that certain educational services are available to the COOR Area citizens, county, and local agencies from outside the area by Governmental Agencies, Business, Industry, and Colleges and Universities.

Area Vocational-Technical Education in Michigan

The latest, tentative position of the Michigan Department of Education indicates need for and guidelines concerning the development of Area Vocational and Technical Education programs. Their position seems to be extremely significant in terms of the planning in this area.

The Area Program Concept

The Area program concept concerns the organization and cooperation within the area to best utilize not only the available outside services but particularly to develop and utilize the resources and potential within the area. Probably the most significant need and important service to the COOR Area is the development of vocational-technical education opportunities. This is explained in the following statement:

* The area vocational and technical concept emphasizes cooperative arrangements between two or more school districts, usually adjacent, or between high schools within large districts for the purpose of operating jointly-shared vocational education programs for people in relatively large geographical areas or areas of high population density. The area concept includes, also, post-secondary vocational and technical programs on an area basis through strategically located community colleges.

The area concept is based upon the conviction that all persons should have easy access to quality vocational education programs directed to individual occupational preparation needs, abilities and interests.

The area program serves as a centralized extension of existing vocational programs in participating high schools. Any program for which a single high school has sufficient financial resources and students may be offered in that school. To participate in vocational programs not provided in their home high schools, students would be transported to another facility for occupational training.

The area program concept provides that students retain their identity with, receive their general education in, and graduate from, their home high schools.

An area vocational program has the following advantages:

1. It provides for a broader tax base distributed over a larger population than is usually present in a single school district.
2. It avoids unnecessary duplication of equipment, services, and costs which might occur if two or more neighboring districts elected to offer identical or similar training programs.
3. It makes possible a broader range of curriculum offerings and, therefore, a more extensive program of occupational training opportunities.
4. It offers training opportunities to a larger number of persons than is possible in smaller schools serving single communities.

---

*Note - This section is a direct quote from a tentative statement of policy by the Michigan State Department of Education, Mimeograph Copy for Study, 1967.

5. The area program concept is the best means through which single school districts lacking sufficient financial resources and/or students can provide adequate vocational education opportunities to enable all youth and adults to develop and maintain satisfactory occupational competence.

The Role of Educational Institutions In Vocational and Technical Education

To assure that all Michigan citizens who need it will have ready access to adequate occupational preparation, specific responsibilities rest with the high schools, secondary area vocational centers, community colleges, four-year colleges and universities, intermediate school districts, and the State Department of Education.

The K-12 District. Each K-12 school district should provide elementary and junior high school students with an opportunity to acquire wholesome attitudes toward work and an awareness of the world of work. These basic understandings should be integrated into the total school program by relating the student's basic education to the world of work. Some schools might elect to offer broad occupational exploratory programs at the junior high school level designed to further develop student interests, and would encourage and assist teachers and counselors to identify each student's interests and abilities prior to his high school entrance.

All K-12 districts should attempt to provide exploratory and pre-vocational programs at the junior high and early senior high school levels. These experiences should be organized as specific courses and be available to all students, and should include as many as possible of the major professional and non-professional occupational areas.

Vocational programs would not be generally offered until the later senior high school years (grades 11-12). Each K-12 district should consider offering all programs for which it has sufficient resources and interested students.

Every K-12 district should provide guidance and counseling for students at all levels to assist each to identify individual interests and aptitudes. The effectiveness of all vocational education programs is dependent upon quality guidance and counseling.

The Secondary Area Vocational Center. The secondary area vocational center should serve to expand the vocational training opportunities of participating K-12 districts. Those programs which cannot be provided by each individual district for lack of sufficient student demand and/or financial resources might be successfully provided in the jointly-supported area center.

Secondary area vocational centers should, in most cases, serve students in grades 11 and 12 whose needs cannot be met by vocational education courses offered in their own schools. Students enrolled in the center would usually spend one-half time there and one-half time in their home schools; however, their identity should remain with the home school.

The Community College. Adequate vocational education programs must provide for continuing education. To accomplish this, each region of the State not served by a university or college offering vocational-technical education programs in their region should be a part of a community college district. The community college should serve as the post-secondary area vocational-technical institution.

The community college should provide vocational and technical programs for post-high school students who desire to continue their education, and for out-of-school youth and adults in need of training or retraining. Secondary area vocational programs could be operated by the community college if requested to do so by the K-12 districts involved.

The post-secondary institutions--community colleges and the four-year universities and colleges--need to plan for providing the specialized occupational training programs not available in all areas of the State. Such a statewide plan is essential to avoiding undesirable duplication and competition and to make most judicious use of State and local funds.

The Intermediate School Districts. Intermediate districts should assist local school districts in any cooperative activities designed to facilitate and improve vocational and technical education programs. Where an area vocational center is desirable and cannot be provided within a single K-12 district, the intermediate school district can serve as the tax-levying and coordinating agency for developing an area program. The intermediate district would be required to enter into a contractual relationship with one or more of the constituent districts, or the community college, for operating the program. The intermediate district is not empowered by law to act as the operating agency for area vocational education programs.

The State Department of Education. The Department of Education recognized leadership as its principal role with respect to vocational and technical program development. While the concept of local autonomy is well established in Michigan, the Department accepts responsibility for providing guidance in the decision making process relative to local programs of education consistent with the provisions in the Michigan State Plan for Vocational Education.

The Department of Education must assume a supporting role by assisting educational agencies in the developmental processes inherent in the continuous improvement of the total educational program.

Program articulation among the K-12 districts, secondary area vocational centers, community colleges and four-year colleges and universities is essential. Without this, the educational program will be less effective in preparing Michigan citizens for full participation in society and in the world of work.

Organizational Patterns for Area Vocational-Technical Education Programs

A multiplicity of difference between the several regions within the State dictate that no single pattern of organization will effectively serve all regions.

To secure maximum development of opportunities for vocational and technical education in all regions of the State, local school districts, intermediate districts, community college districts, four-year colleges and universities and the State Department of Education must work cooperatively to plan and implement area vocational-technical programs. Official designation will be given by the State Board of Education specifically for area center buildings and operating districts.

A. Secondary Area Vocational Programs

1. When designated buildings are used, two or more secondary districts could provide cooperatively an area program by using any of the following four patterns:

    a. Buildings owned and operated by and located at one of the participating high schools, or

    b. Separate buildings owned by the intermediate district and operated by one of the cooperating school districts, or the community college serving the region, or

    c. Buildings owned and operated jointly by two or more K-12 districts under an inter-governmental contract, or

    d. Buildings owned and operated by the community college serving the region located at the college site or in other locations accessible to all people in the area.

    These programs could be financed locally in the following ways:

    a. By a tax levied by the intermediate district.

    b. By charter millage or additional millage levied by the community college district to operate secondary programs.

It is possible to finance some area vocational programs on a tuition basis. However, due to the undesirable aspects of tuition arrangements, they should be used on an interim basis only.

2. School districts of the first and second class could own and operate area vocational centers by using facilities strategically located within their district and officially approved by the State Board of Education as area vocational centers. Financing area programs would be the responsibility of the operating district.

B. Post-Secondary Vocational and Technical Education Programs

Post-secondary area vocational and technical education programs should be operated and financed by the community college, or by a four-year institution offering vocational-technical education programs, in each region of the State.

Facilities should be located at the college site or in other locations readily accessible to all persons in the service area. If the region is also served by a separate secondary area vocational education center (as described in A.1.b., above), these facilities should be available to the community college for operating post-secondary vocational and technical education programs at times when not being used for secondary programs. This procedure will eliminate needless duplication of facilities within the area and will permit maximum utilization of the secondary area facilities.

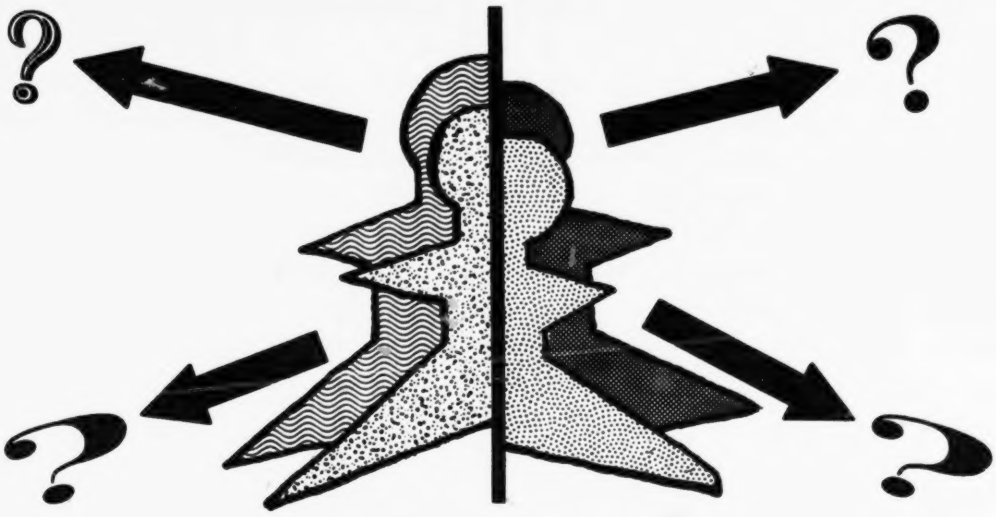
Curriculum Planning

An organizational plan defining institutional roles and responsibilities is basic tothe formulation of the policy necessary to plan and develop programs to meet the occupational needs of the community. The organizational plan and curriculum plan should emerge from a concept or idea of purpose. The Michigan Department of Education in fulfilling its leadership responsibilities has, in a tentative statement, attempted to suggest areas of responsibility in complementing an integrated occupational curriculum. This statement by the Michigan Vocational-Technical Education Curriculum Committee (Appendix A) is included because it represents the best available State level authority and direction as "a model for curriculum development...and...to stimulate the study of occupational education curricula which will lead ultimately to the development of effective occupational education programs in all regions of the State."[15]

---

[15] Michigan Department of Education, A Vertically Integrated Occupational Curriculum for Schools in Michigan, Ditto, Fifth Draft, 6/14/67.

CHAPTER II



EDUCATIONAL OPPORTUNITIES

Purposes of Education

The demands of society should determine the purposes of education. Probably the most urgent and most discussed problem today deals with the unemployed or unemployable. This problem has developed as a result of technology and a general consensus that everyone should have a formal education, at least through high school. Business and industry, in their hiring practices, give credence to this thinking by not employing "school dropouts." A further factor seems to be the reluctance to pay minimum wages to 16-17-18 year olds. Generally they are unskilled, immature and a poor employment risk if they do not have the personal responsibility to stay in school.

The machine has for a number of years been in competition with unskilled labor. In fact when machines can produce work at such a low rate - 5 to 10¢ per hour - as compared with what a worker can produce at minimum wage rates, it is clear that manpower cannot compete economically with machine power.

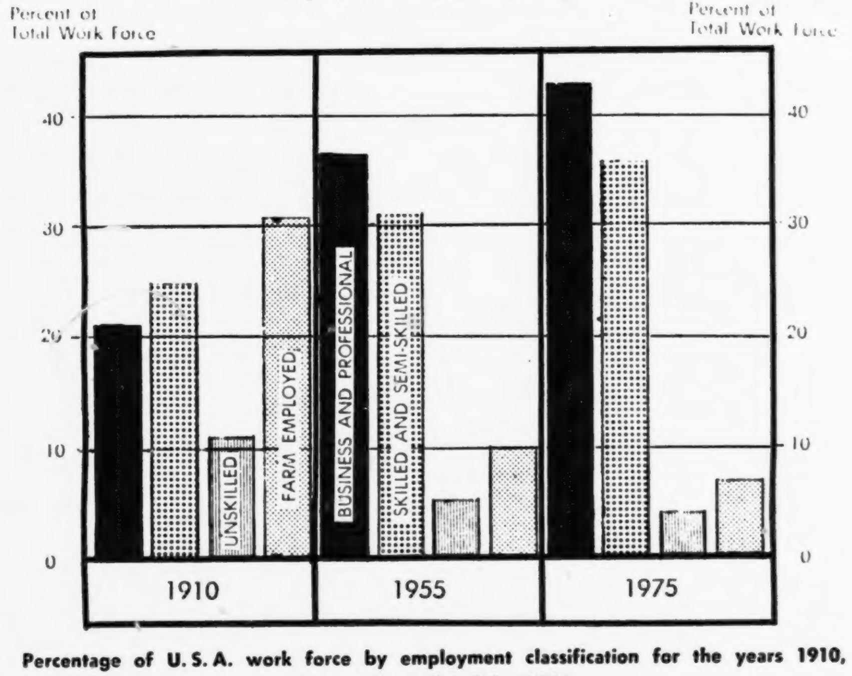
Examples of the effect of machines on manpower can be noted in the agricultural operations, in construction work, transportation and manufacturing. When management invests heavily in costly equipment, to protect the investment, they employ operators with a high degree of responsibility. This factor is probably more discriminating against the young worker than any other.

The management of machines require a high degree of mature judgment if they are to perform efficiently, safely, and economically. The person who resists education, or lacks a sense of responsibility is not a good employment risk.

It is very clear that there is not a very bright future for the unskilled and uneducated. Figure 1 indicates the predicted future trends in the U.S.A. work force for 1910-1955-1975.

Figure 1

Not Much Future for the Unskilled
Employment Trends 1910-1975



Percentage of U.S.A. work force by employment classification for the years 1910, 1955, and predicted for 1975.

Adopted from: *Changing Times* "The Coming Boom in Good Jobs." Dec. 1957.

> The millions of Americans employed in non-professional skilled and technical jobs are essential and highly valued members of our society. While great prestige is accorded to some professions, social status is not rigidly determined, in our culture, by occupation. Many false values are associated with occupational status. It is widely believed that the professional is in some way "better" than the non-professional or the man who works with his hands. Yet these notions are largely a carry-over from an era when scarce resources were concentrated in the hands of a few, creating a sharp division between "the haves" and the "have nots". In actual fact, the great diversity of non-professional occupations which contribute to the output and the growth of the American economy offers the individuals employed in them great dignity, personal satisfaction, and both economic and social recognition and reward.[1]

This statement discusses the "Occupational Dignity" as it relates to the status of jobs in our culture.

In too many schools vocational subjects lack status and become a "dumping ground" for the problem student thereby discouraging the student with a sincere interest in developing a saleable skill. It is an obvious fact that most teachers are ill-informed and inexperienced about the "world of work". They are college experienced so it is logical that they would show a bias toward college preparation. This would suggest that an approach to improve the situation in our schools will require extensive professional inservice programs in occupational values.

In a paper prepared for the Conference on Prospective Changes in Society by 1980, Ralph W. Tyler discussed in Chapter 2 "Purposes, Scope and Organization of Education." Under the topic of Vocational Education he states:

> The education required for occupational competence involves much more than training in specific vocational skills. It begins in early childhood and continues throughout active occupational life. Its objectives include: increasing understanding of the world of work, knowledge of vocational opportunities, development of basic literacy and work habits, development of ability to plan a career, development of the abilities required in the general field of an occupation, and development of specific occupational skills as needed. Occupational education is a core responsibility of the schools when viewed in this larger context, but as such it should emphasize individual flexibility, broad general education, competence in career planning and in developing more specific skills as needed. It involves not only experiences in the elementary and secondary schools but also in colleges and other post-high school institutions. Opportunities should not be limited by age or previous schooling if the student can be substantially aided in his educational development by further school experiences.[2]

This summarizes the importance and direction education must take. In the same publication John I. Goodlad states:

> The most important task for our schools during the next few years - and for many generations to come - is their daily practice and demonstration of those qualities of compassion, sensitivity, humility, self-renewal and many more that we have long claimed to be seeking in the human products of education. In effect, this task is to infuse the means of education with the values we have hitherto espoused in defining the ends.[3]

---

[1] Institute for Community Development and Services, Continuing Education Service, Michigan State University Career Opportunity Guide I, 1966.

[2] Tyler, Ralph W., "Purposes, Scope and Organization of Education," Implications for Prospective Changes in Society, Designing Education for the Future (An Eight-State Project), Denver, Colo., 1967, Chapter 2, p. 34.

[3] Goodlad, John ., "The Educational Program to 1980 and Beyond," Ibid., p. 47.

The criticism that the schools are not teaching the right things is not new. What is new is that the major routes to career employment are becoming more and more via the schools. The person who is unsuccessful in school, as it has been conceived, is in real trouble in the "world of work". This then raises an important question about the school programs as they now exist in many American communities.

A realistic appraisal of the situation seems to indicate that the teaching of a favorable work attitude and a sense of responsibility is the highest priority. Without an attitude of wanting to work or being responsible a person would be unemployable at any level of skill or profession.

Historically the small schools in the rural areas have been criticized because of their limited course offerings yet their holding power is very good. The Michigan Department of Education, "Public High School Dropout" study for 1964-65 lists COOR Area at 5.1% which is considerably below the state average of 6.7%.[7] It appears also that the employability rate and college admission rate is equally as good as any other schools in the country. This seems to indicate that these small schools are doing an average or better job with attitudes in spite of some of the program limitations. This is probably a result of the smaller number of students and the fact that everyone knows everyone else and teachers, administration and people in general behave with considerable concern and responsibility for everyones' welfare.

It is generally conceded that the programs in the small schools should be improved but this should not be at the expense of developing proper attitudes. Although there is substantial evidence to indicate that large schools and high dropout rate go together, this should not necessarily be the correct relationship. What seems to be important is the attitude of the school officials toward students. Even with the long lists of courses and educational offerings the dropout rate is high unless the image of the school is one of serving and helping.

The goal should be to have the program and an attitude of concern for every student. Under no circumstances should emphasis on attitudes be excused or rationalized away just because there are many students or a wide range of courses. The fact that a wide range of courses is offered should make it easier to develop sound attitudes toward life.

One of the obvious discrepancies in our existing educational programs is the conflict between the college preparatory program and the number of youth attending college. With as many as 80% on a high school college preparatory program and only 30% going to college it raises a serious question about the curriculum. Within the rank-and-file of society and within the power structure of our educational systems, especially higher education, there is a lack of respect for the "world of work". It seems that we lack an appreciation for the dignity of work.

The schools in the COOR Area indicate a wide range of program preference as reported by the principals. It was evident that little planned effort was being made to introduce students to the world of work.

The school enrollments this year are as follows:

Grade	Boys	Girls	Total
9	258	213	471
10	240	201	441
11	173	167	340
12	187	182	369
	858	773	1,621

The estimated breakdown of students on the various programs, as reported by the principals is as follows for grades 9-12:

College Preparatory	581
General Education	305
Vocational Education	64
Vocational Agriculture	47
Business-Office Practice	105
Distributive Education	0
Home Economics	154
Undecided	171

---

[7] State Board of Education, "Public High School Dropouts in Michigan, 1964-65," Research Monograph No. 7 - Revised, March, 1967.

On this same subject Tyler, in discussing the student with respect to the aims of the school, stated:

> The school can only start him on a life-long career of continued learning. Hence, an important aim today is to teach students to learn and to develop in them a strong interest in continued study together with the motivation and skills required to keep on with their learning after graduation. This objective has not generally been accepted by schools and colleges in the past, although some teachers here and there have given it major attention.[4]

It is quite clear that a renewal of emphasis or redefinition of aims being identified is an important consideration if we expect to meet the educational challenges of the future.

In 1930, 80-85% of manpower energy went into production of goods. Today less than 15% goes into production. The authorities in technology and cybernetics have predicted that within 15 years 2 to 3% of our population will be able to do all the work that has to be done to satisfy the material needs.[5] The predicted changes are indicated in the following charts.

In the face of future eventualities how can our schools be organized to educate all youth and adults for the world they will be living in? The goals seem to be reasonably clear but the methods and procedures are somewhat obscure. This is, however, no different from many tasks people have identified in the past. When the U.S.A. made the decision to survey the moon, the goal was clear but how and with what was not known. The problems were identified so that they could be solved not to defeat achievement of the goal. If a vast majority of our people are going to be spending 80-90% of their lives in the activity of learning, then it is clear that our task in the schools is to teach youth how to learn, and the value of being responsible.

Our immediate problem in the six school systems included in this study is to determine the extent to which schools are meeting these aims and find ways and means of solving problems presently restricting the full achievement of the goals.

Role of Educational Agencies

It has become increasingly clear that the local K-12 Districts cannot provide effectively all the educational needs of people. As indicated previously the demands of society become more and more complex with the advances of technology and the shift in work patterns. This places new demands on our educational institutions.

Education can be categorized into two classifications, formal and informal. Formal education includes all instruction for which credit is given and recognized for degree or promotion purposes. The informal education is basically that which is learned by the individual at his own initiative or incidental to life. The following chart attempts to illustrate the relationship between the formal and informal educational opportunities. It is clear that the demands of society require a change in the ratio of formal to informal education. Dr. Howard McClusky, a leading authority on Adult Education, pressed his concern for the formal and informal as the explicit and implicit stages of education.

> To be more specific, we can chart the educative dimension of a community on a continuum ranging from the explicit stage at one end of the scale to a highly implicit stage at the other end. Our task then would be to improve what is already explicit, and to make explicit what is largely latent or concealed.[6]

---

[4] Tyler, op. cit. p. 39.

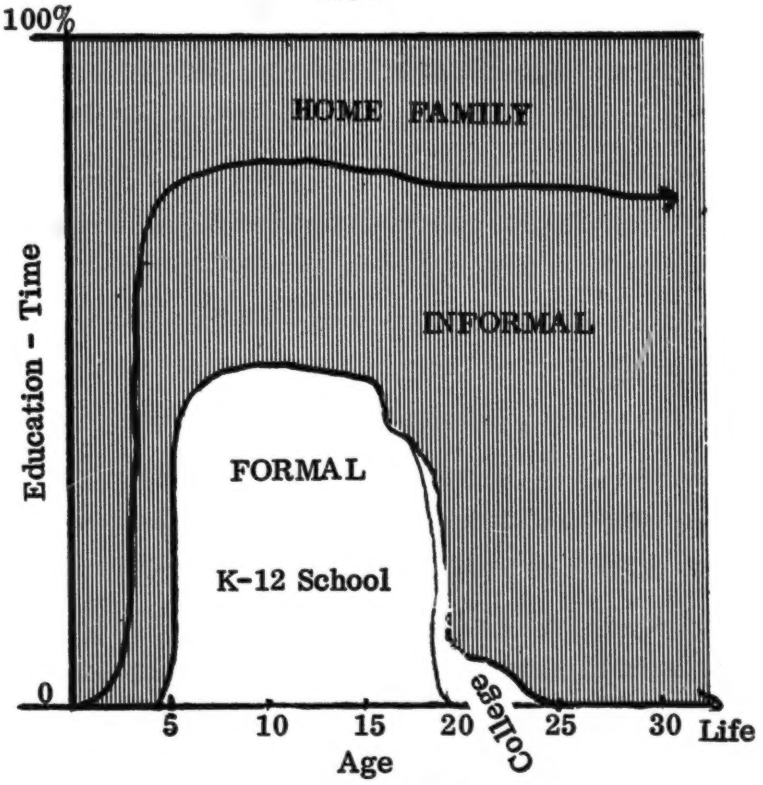
[5] Colm, Gerhard, "Prospective Economic Developments," op. cit., p. 91.

[6] McClusky, Howard, "The Educative Community," The Community School and Its Administration, Flint Board of Education Bldg; Flint, Mich., Vol. V, No. 9, May, 1967.

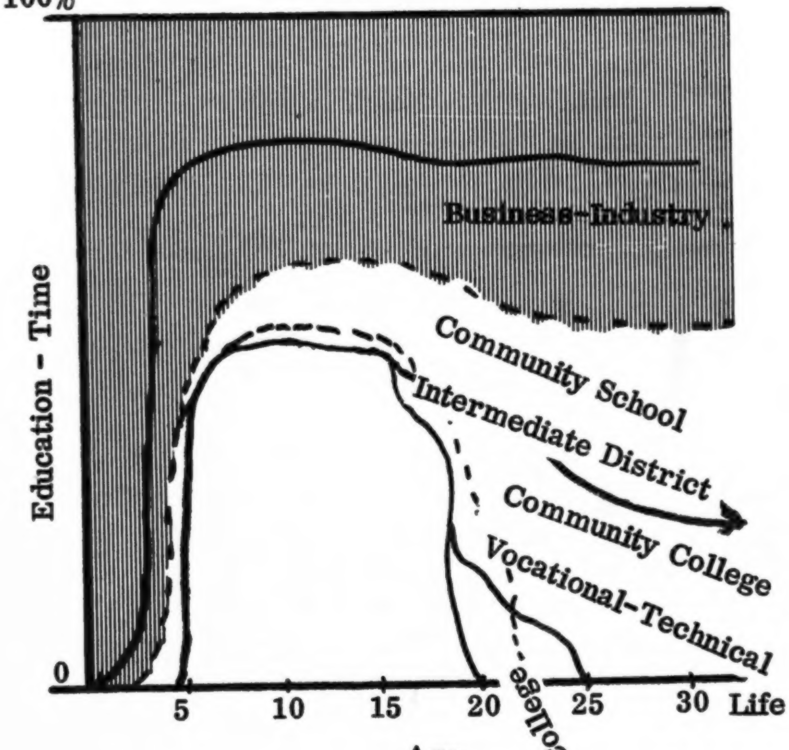
This includes concern for the family.

Next to the school we would place the home. In many ways the home is the most fundamental educational agency in the community and parents are the community's most influential (for good or ill) teachers.

NOW



PROPOSED



The extension of the formal becomes almost crucial to individuals if they are to meet the competition of being up-graded in society.

At the present time, under state statutes, the formal education opportunities can be provided on several levels.

The Local K-12 District is the basic educational unit.

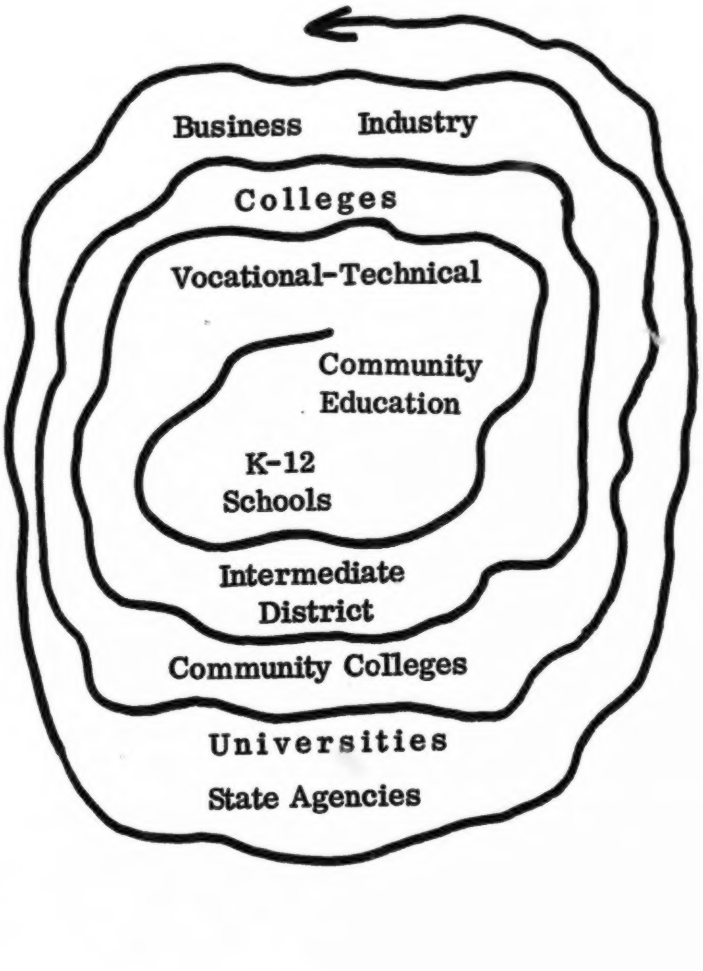
The Intermediate School Districts supplement the local school district's program.

The Community Colleges provide post high school programs on an area basis.

The Area Vocational-Technical Schools provide high school and post high school programs.

The Universities and Colleges provide programs, instruction and services state wide.

These agencies function in a concentric, interdependent, supplementary and complementary sense as indicated in the following diagram.


Business Industry
Colleges
Vocational-Technical
Community Education
K-12 Schools
Intermediate District
Community Colleges
Universities
State Agencies

The K-12 Schools in the COOR Area

A considerable amount of time and professional attention was given to the K-12 school systems included in the COOR Area. The schools were visited at least three times and a rather detailed analysis was made of the program and facilities by the high school principal. At the time of the visits administrators and staff, particularly those teaching in the vocational areas, were interviewed for their professional opinions regarding the program limitations and student and community needs. At one visit a rather careful and complete analysis of facilities was made by personally inspecting each room and instructional space in terms of its adequacy for technical-vocational or general education use.

On the basis of the High School Program Inventory a tabulation of the six school programs was made. Table I summarizes the offerings indicating with an X the grade levels where specific courses are offered. The number following the X's for each school indicates the number of students enrolled. It is very difficult to chart the total curriculum of a school. It can be noted that a variety of practices are employed in the naming of courses. It should be pointed out that sometimes the name of the course does not indicate the full extent of the experiences covered by the teacher. As an example some of the schools do not indicate an offering in drafting but drafting is taught as a part of the offering titled general shop or industrial arts. Likewise, there are units in woodworking and metals included in the general shop or I.A. courses. The same is true in the business education offering. Because of the small enrollments the students are scheduled in a general course and the teacher individualizes instruction to meet the student's specific needs. For example, in one school considerable was being done in carpentry and general building.

It is clearly evident from these tabulations and substantiated by the visitation to the schools and discussion with the administrators that the programs are limited and sketchy in the vocational-technical or occupational-career preparation areas. Although the facilities were generally fair and in some instances very good the career emphasis was non-existent. The emphasis was more directed toward general education with some very general skill development.

The academic and general education offerings seem to be adequate both in course offering and facilities. Not all schools use the same scheduling plans nor do they have the same graduation requirements. There is a very definate limitation in electives and special classes. It can be noted that the advanced academic classes, when offered, have small enrollments. This is not, however, to indicate that individuals are not being accommodated because there is considerable individualization of instruction permitting both the slow and fast students to work at their potential.

The administrators seem to be well aware of the limitations in their schools. This is reflected in their whole-hearted support of the Area Vocational-Technical Study and their commitments to cooperate with Kirtland College in developing an area program. The one area where they do need local help is in the general curriculum development; particularly working with the teachers to emphasize the work ethic, or an attitude supporting the dignity of work. The teachers need help and professional support from consultants to develop this emphasis in the instructional programs. This is basic to the success of the area program. Their attitude now would seem to be very favorable in terms of initiating a curriculum study through the services and leadership of the intermediate district.

Student Interest Inventory

A student occupational inventory was used to determine what the high school students' career interests are at this time. In order to give their preferences more validity each student was provided an Occupational Guide. This is a print out of a publication Career Opportunity Guide I published by Michigan State University.[8] It lists in seven categories many of the usual

---

[8] Institute for Community Development and Service, op. cit.

TABLE I

HIGH SCHOOL COURSE OFFERINGS BY GRADE AND TOTAL STUDENTS

COURSE	Gerrish Higgins					Grayling					Fairview					Houghton					Mio-AuSable					West Branch				
	9	10	11	12		9	10	11	12		9	10	11	12		9	10	11	12		9	10	11	12		9	10	11	12	
Industrial Arts	X	X			65	X	X	X	X	93		X	X	X	13	X	X	X	X	72	X	X	X	X	37					
General Shop											X				13											X				40
Drafting												X	X	X	6			X	X	12	X	X	X	X	38			X	X	24
Sheet Metal																												X	X	23
Woodworking																											X	X	X	31
Farm Shop													X	X	7															
Agriculture												X	X	X	21											X	X	X	X	42
General Business		X		X	18		X			67						X	X	X	X	56	X	X	X	X	23		X	X	X	41
Bookkeeping			X	X	17			X	X	54			X	X	22				X	22		X	X	X	30			X	X	44
Business Law																		X	X	23										
Economic Geog.																												X	X	61
Business Arithmetic																														
Typewriting I		X	X	X	37	X	X				X	X	X	X	32		X	X	X	50	X	X	X		50			X	X	91
Typewriting II								X	X	16			X	X	5			X	X	16		X	X	X	11				X	8
Shorthand				X				X	X	16									X	18									X	18
Office Practice			X	X	20														X	12										
Salesmanship																		X	X	22										
Business English				X	15																						X	X	X	38
Office Machine				X	15																									
Consumer Econ.																														
Home Economics											X	X	X		31	X	X	X	X	40	X	X	X	X	37	X	X	X	X	110
Family Relations			X	X	22								X	X	10				X	16										
Homemaking	X	X			41	X	X	X	X	62																				
General Math	X				44	X				36	X				13	X	X	X		43	X				15	X	X	X		83
Algebra	X	X	X	X	49	X				72	X				22	X	X	X	X	63	X	X			31	X	X	X	X	88
Geometry		X	X		34		X			29		X			24	X	X	X	X	29		X	X		23		X	X	X	56
Trigonometry																														
Advanced Math									X	6				X	5				X	6										
Advanced Algebra			X	X	26			X		15			X		7			X	X	20								X		25
General Science						X				107						X	X	X	X	53	X	X			22	X				67
Biology	X	X			51		X			66	X				37	X	X	X	X	47	X	X	X	X	38		X	X		70
Physics				X	17								X	X					X	13			X	X	9			X	X	
Chemistry			X	X	20			X	X	42			X	X	13			X	X	24			X	X				X	X	21
Conservation																X	X	X	X	25										

	Gerrish Higgins					Grayling					Fairview					Houghton					Mio-AuSable					West Branch				
COURSE	9	10	11	12		9	10	11	12		9	10	11	12		9	10	11	12		9	10	11	12		9	10	11	12	
American History			X		48			X		81			X		22			X	X	70			X		27			X		105
World History		X			45		X			83		X	X	X	9		X			24	X	X	X	X	30		X			124
State History																						X	X	X	7					
Government				X	55				X	83				X	24				X	63				X	28				X	118
World Geography												X			45		X	X	X	35							X	X	X	70
Economics														X	23				X	12										
Sociology									X	75							X	X	X	59										
Social Studies																	X			27										
English I	X				81	X				99	X				37	X				83	X				44	X				137
English II		X			68		X			93		X			45		X			68		X			45		X			56
English III																		X		69								X		46
English Literature				X	31				X	40			X	X					X	24			X		24				X	28
American Literature			X		54			X		87			X	X	33													X		81
Journalism																		X	X	22										
Public Speaking	X	X	X	X	14				X	13									X	36						X	X	X	X	105
Reading																X	X	X		6										
Creative Writing																								X	15					
Library Training																	X	X	X	20										
Broadcasting																			X	1										
Remedial English																											X			26
Latin																X	X			49										
German													X	X	15															
French												X	X		15	X	X	X	X	26	X	X	X	X	21	X	X	X	X	62
Spanish		X	X	X	60		X	X	X																					
Art	X	X	X	X	28	X				58	X	X			10	X	X	X	X	16						X	X	X	X	54
Vocal Music																X	X	X	X	13						X	X	X	X	54
Band	X	X	X	X	70	X	X	X	X	30						X	X	X	X	29						X	X	X	X	45
Choir							X	X	X	40																				
Music Theory									X	4						X	X	X	X	29										
Harmony	X				25											X	X	X	X	29										
P.E. Boys	X	X	X		66	X	X	X	X	150	X	X	X	X	56	X	X	X	X	105	X	X	X	X	35	X	X	X	X	110
P.E. Girls	X	X	X		51	X	X	X	X	108						X	X	X	X	95	X	X	X	X	24	X	X	X	X	115
Drivers Education	X	X	X	X	13						X	X	X		34	X	X	X		30							X	X	X	142
Football	X	X	X	X	52	X	X	X	X	70						X	X	X	X	50						X	X	X	X	83
Basketball	X	X	X	X	48	X	X	X	X	24	X	X	X	X	22	X	X	X	X	23						X	X	X	X	50
Baseball	X	X	X	X	27	X	X	X	X	21	X	X	X	X	29	X	X	X	X	14	X	X	X	X	20	X	X	X	X	18
Track	X	X	X	X	28	X	X	X	X	40	X	X	X	X	32		X	X	X	18						X	X	X	X	22
Golf	X	X	X	X	11	X	X	X	X	14																				

or more general occupation titles indicating briefly the nature of the work and the approximate length of training needed to enter the job. These were all occupations requiring less than a B.A. or B.S. degree.

The inventory asked a number of questions about the student's background, his first, second, and third occupational choices, whether he would be interested in pursuing job preparation in high school and his preference of four year college, community college, vocational-technical school or no further school. Some of the background questions were to help determine whether the student's indicated preference was realistic in terms of his ability. The principals or counselors were asked to check the student responses in terms of their knowledge of the student's potential.

The following Tables II - IX indicate the students' preferences. These are reported according to the occupation clusters. They have been totaled in both first, second, and third choices by job title. In the analysis of the data we have used the total of choices to

TABLE II

ENGINEERING AND SCIENTIFIC

OCCUPATION	9th grade 1	9th grade 2	9th grade 3	10th grade 1	10th grade 2	10th grade 3	11th grade 1	11th grade 2	11th grade 3	Total	High School
1. Architectural Draftsman	8	6	1	4	6	4	7	4	4	44	15
2. Technical Illustrator										0	1
3. Mechanical Draftsman	1	2	0	2	0	0	2	3	1	11	9
4. Engineering and Mechanical Tech.	1	3	1	1	2	3	1	2	1	15	1
5. Highway Engineer Technician	1	1	1	2	1	1	0	1	1	9	
6. Optical Technician	0	1	0				0	0	1	2	
7. Metallurgist Assistant				2	0	2				4	
8. X-Ray Technician Radiographer	1	0	0							1	
9. Chemical Technician	5	3	2	5	0	7	1	1	1	25	7
10. Industrial Engineering Technician	0	0	3	1	1	2	1	0	1	9	
11. Mechanical Technician	3	1	2	3	2	0	1	3	0	15	5
12. Quality Control Technician	0	1	0	1	1	0				3	
13. Instrumentation Technician	1	1	2	1	0	1	2	0	0	8	
14. Electronic Engineering Technician	2	4	1	5	4	0	2	1	1	20	7
15. Surveyor	4	5	2	0	6	4	1	0	3	25	5
TOTAL	27	28	15	27	23	24	18	15	14	191	51

indicate a high level of interest. With the number of job titles to choose from it would seem that this provides meaningful information that gives direction in determining which programs the school could best give attention to in their program planning.

Grades 9, 10, and 11 were used in these tabulations. Grade 12 was excluded because they will be beyond the community college level before a program can be provided.

TABLE III

MEDICAL AND HEALTH

OCCUPATION	9th grade			10th grade			11th grade			Total	High School
	1	2	3	1	2	3	1	2	3		
1. Histological Technician	4	1	0	3	1	0	0	1	1	11	3
2. Medical Technologist	7	4	3	2	4	1	2	2	1	26	8
3. X-Ray Technologist	0	3	1	2	5	3	1	2	4	21	7
4. Medical Lab Assistant	6	4	1	3	6	2	3	2	2	29	9
5. Medical and Dental Assistant	6	4	3	2	3	1	3	2	2	26	3
6. Physical Therapist	4	7	1							12	2
7. Sanitarian	1	0	2							3	
TOTAL	28	23	11	12	19	7	9	9	10	128	32

TABLE IV

FARMING AND HORTICULTURE

OCCUPATION	9th grade			10th grade			11th grade			Total	High School
	1	2	3	1	2	3	1	2	3		
1. Soil Technician	1	0	0	0	2	0	0	1	1	5	
2. Landscape and Nurseryman	1	1	1	0	1	0	1	1	1	7	2
3. Elevator and Farm Supplyman	0	0	1				0	1	0	2	1
4. Floriculturist	0	0	2	1	1	2	0	1	3	10	2
5. Farmer	9	3	2	2	5	3	5	0	1	30	6
TOTAL	11	4	6	3	9	5	6	4	6	54	11

The student responses to offering work toward the occupation at the high school level are indicated at the right under the heading High School.

Table III presents the data relating to the general area of "Medical and Health." There was a total of 128 student responses in this area. The specific job classifications chosen most often in this area were medical lab assistant (29), medical and dental assistant (26), and medical technologist (20).

TABLE V

WRITING, ART, ADMINISTRATION

	9th grade			10th grade			11th grade			Total	High School
	1	2	3	1	2	3	1	2	3		
OCCUPATION											
1. Journalist	6	8	4	9	7	2	6	3	2	47	14
2. Tool and Die Designer	0	0	1	2	0	3	0	2	1	9	1
3. Body Designer	4	1	0	3	5	0	3	4	2	22	7
4. Interior Decorator and Designer	10	5	5	4	3	1	7	9	1	46	16
5. Furniture Designer	0	1	1	0	1	0				3	
6. Commercial Artist	16	5	4	8	2	6	3	4	1	49	18
7. Administrative Secretary	0	0	1	0	1	1				3	1
8. Legal Secretary	1	2	2	3	1	1	0	0	1	11	3
9. Medical Secretary	2	2	3	2	5	0	1	0	5	20	3
10. Accountant	0	0	1	4	1	1	0	4	2	13	4
11. Office Manager,	1	0	1	1	2	0	2	3	2	12	3
12. Motel Manager	1	1	2	2	0	1	1	1	1	11	2
13. Traffic and Transportation Manager	1	0	0	1	0	0				2	
14. Cost Estimator				0	0	2				2	
TOTAL	43	25	25	39	30	17	23	30	18	250	72

In the first general area, "Engineering and Scientific," there was a total of 191 responses. As can be seen in Table II the largest specific job classifications chosen were: architectural draftsman (44), chemical technician (25), surveyor (25), and electronic engineering technician (20).

"Farming and Horticulture" are represented in Table IV. Fifty-four students expressed an interest in this general classification with the largest interest areas being: farmer (30) and floriculturist (10).

TABLE VI

PERSONAL SERVICES

	9th grade			10th grade			11th grade			Total	High School
OCCUPATION	1	2	3	1	2	3	1	2	3		
1. Food Service Supervisor							1	1	0	2	1
2. Barber	7	7	1	1	5	2	2	1	2	28	5
3. Hair Stylist	20	18	13	13	15	8	5	9	5	106	36
4. Cosmetologist	3	3	5	6	4	2	2	4	3	32	13
5. Manicurist	0	0	1	0	0	2	0	0	1	4	2
6. Electrologist	0	0	1							1	
7. Practical Nurse	7	12	1	6	3	1	2	5	1	38	16
8. Cake Decorator	2	2	3	2	2	1	0	2	0	14	2
9. Dressmaker	5	2	3	2	0	2	1	0	1	16	5
10. Law Officer (Patrolman)	6	6	8	12	8	12	3	4	1	60	16
TOTAL	50	50	36	42	37	30	16	26	14	301	96

TABLE VII

MACHINE, BENCH, AND STRUCTURAL TRADES

	9th grade			10th grade			11th grade			Total	High School
OCCUPATION	1	2	3	1	2	3	1	2	3		
1. Machinist	4	3	3	4	2	3	2	2	0	23	6
2. Auto Mechanic	25	15	5	21	17	12	12	7	5	119	35
3. Heavy Equipment Repairman	0	4	1	3	2	0	2	3	0	15	3
4. Automobile Service Mechanic	4	6	6	3	2	3	0	1	2	27	6
5. Printer	1	0	0	1	0	0				2	1
6. Radio and TV Serviceman	0	1	6	4	2	2	0	0	1	16	
7. Heating & Refrigeration Mechanic				0	1	1				2	
8. Welder	4	9	7	2	3	5	0	0	3	33	3
TOTAL	38	38	28	38	29	26	16	13	11	237	54

The third general area is "Writing, Art, and Administration." The data for this area are presented in Table V and it can be noted that there were a total of 250 student responses. The major job classifications chosen were: commercial artist (49), journalist (47), interior decorator and designer (46), and body designer (22).

The fifth general area of "Personal Services" is represented in Table VI As can be noted there were a total of 301 student responses. The greatest interests were expressed in the job classifications of: hair stylist (106), law office (60), and practical nurse (38).

TABLE VIII

CLERICAL AND SALES

OCCUPATION	9th grade			10th grade			11th grade			Total	High School
	1	2	3	1	2	3	1	2	3		
1. Secretary	30	21	9	23	13	10	12	4	8	130	44
2. Stenographer	2	2	1	3	6	4	3	0	1	22	8
3. Court Reporter	1	0	2	1	0	1				5	1
4. Clerk Typist	0	5	3	1	2	3	1	1	3	19	4
5. Bookkeeper	3	1	3	2	3	5	4	2	0	23	5
6. Receptionist	2	3	5	4	8	4	2	4	1	33	4
7. Switchboard Operator	1	2	3	2	3	2	3	3	2	21	4
8. Cashier	2	2	5	2	2	2	1	1	1	18	3
9. Account Clerk	0	2	1	2	1	2	2	0	1	11	2
10. Key Punch Operator	0	0	1	0	3	4	1	1	2	12	2
11. Comptometer Operator	0	1	0				0	1	0	2	
12. Computer Programmer	5	1	6	2	3	2	2	2	1	24	15
13. Salesman	1	6	4	4	5	3	1	3	0	27	8
14. Travel Agent	1	5	3	1	3	3	0	0	1	17	3
15. Fashion Model	5	9	6	3	4	6	1	3	5	42	6
16. Library Assistant	1	6	7	2	1	1	1	2	4	25	4
TOTAL	54	66	59	52	57	53	34	27	30	431	113

Table VIII represents the data collected in the area of "Clerical and Sales." There were a total of 431 student responses with major job selections being in the following areas: secretary (130), fashion model (42), receptionist (33), salesman (27), and computer programmer (24).

Table VII represents a breakdown of the 237 responses in the "Machine, Bench and Structural Trades. "The greatest interest was shown in Auto Mechanics (119), Automobile Service Mechanics (27), Welder (33), Machinist (23), Radio and TV Serviceman (16), and Heavy Equipment Repairman (15).

TABLE IX

SKILLED TRADES

OCCUPATION	9th grade			10th grade			11th grade			Total	High School
	1	2	3	1	2	3	1	2	3		
1. Bricklayer	1	5	1	2	4	0				13	2
2. Carpenter	9	4	10	8	4	8	3	1	1	48	5
3. Cement Mason				0	0	2	1	0	1	4	
4. Electrician	3	4	6	1	7	2	1	0	3	27	5
5. Floor Coverer				0	0	1				1	
6. Operating Engineer	0	3	2	0	0	1	1	2	2	11	1
7. Painter Decorator				1	0	0				1	
8. Plasterer	1	0	0							1	1
9. Plumber Pipe-Fitter	0	0	1							1	
10. Roofer				0	0	1				1	
11. Automobile Body Repairman	2	3	2	3	4	2	0	2	1	19	3
12. Blacksmith	0	1	0							1	
13. Heavy-Duty Equipment Mechanic	0	0	1							1	
14. Engraver				0	0	1				1	
15. Tool & Die Maker	4	1	1	1	0	2	1	0	1	11	3
16. Photo-Engraver	0	1	0				1	0	1	2	1
17. Photographer	3	4	1	2	1	2	0	0	1	14	
18. Stationary Engineer	1	0	0				0	1	0	2	1
19. Telephone Lineman				1	1	2	0	0	1	5	
20. Baker	1	0	4	1	0	2	0	0	2	10	3
21. Butcher Meat-Cutter	1	2	1	0	1	1	0	0	1	7	
22. Cabinetmaker	0	0	1							1	
23. Draftsman-Designer	1	0	3	0	2	0	1	0	1	8	
24. Cable Splicer											
25. Lineman	0	0	1	2	3	2				8	1
26. Railroad Carman				0	0	1	0	0	1	2	
27. Machinist (Railroad)	0	0	1	0	0	1				2	
28. Sheet Metal Worker Pipefitter (Railroad)				2	1	0				3	
29. Machinist (Repair Industrial)	1	0	0							1	
TOTAL	28	28	36	24	28	31	9	6	16	206	26

Table IX represents a breakdown of the 206 responses of students in the "Skilled Trades." In general the skilled trades are those occupations requiring a considerable amount of skill. To develop saleable skill, it is necessary to provide opportunities for practice. The usual procedure is through a planned and supervised apprenticeship. The apprenticeship time on most skilled trades is 2 to 5 years. The theory associated with most trades is best acquired through an in-service program where it can be matched to the needs of the apprentice as he is on the job developing a skill.

The skilled trades with the greatest interest include Carpenter (48), Electrician (27), Automobile Body Repair (19), Photographer (14) Bricklayer (13), Tool and Die Maker (11), and Baker (10).

Table X indicates the summary of the students by occupational category.

It is evident that students have a considerable interest in occupational preparation in all of these areas.

TABLE X

TECHNICAL-VOCATIONAL INTERESTED STUDENTS SUMMARIZED
BY OCCUPATIONAL CATEGORY, GRADES 9-11, INCLUSIVE

Occupational Category	1st Choice	2nd Choice	3rd Choice	Total
Writing, Art, Administration	105	85	60	250
Engineering & Scientific	72	66	53	191
Medical & Health	49	51	27	127
Farming & Horticulture	20	17	17	54
Skilled Trades	61	65	81	207
Clerical and Sales	140	150	142	432
Personal Service	108	113	80	301
Machine, Bench & Structural Trades	92	80	65	237
				1,799

Table XI suggests the approximate percentage of students who currently perceive educational plans beyond high school. As can be noted 84 per cent of the students indicate a plan to attend some type of institutionalized occupational preparation beyond high school and of these 46 per cent indicate an interest in either a community college or vocational-technical school.

TABLE XI

HIGH SCHOOL STUDENTS' CHOICE OF SCHOOL

School	Male	Female	Total	Percentage
Community College	114	112	226	24%
Four Year College	212	120	382	38%
Vocational-Technical	107	105	212	22%
None	89	64	153	16%

TABLE XII

SUMMARY OF STUDENT INTEREST
BY CAREER TITLES

Architectural Draftsman	44
Mechanical Draftsman	11
Engineering Technologist	15
Chemical Technician	25
Mechanical Technician	15
Electronic Technician	20
Surveyor	25
Medical Technologist	26
X-Ray Technologist	21
Medical Lab. Assistant	29
Dental and Medical Assistant	26
Farmer	30
Journalist	47
Body Designer	22
Interior Decorator	46
Commercial Artist	49
Legal Secretary	11
Medical Secretary	20
Accountant	13
Office Manager	12
Motel Manager	12
Barber	28
Hair Stylist	106
Cosmetologist	32
Practical Nurse	38
Dress Maker	16
Law Officer	60
Machinist	23
Auto Mechanic	119
Equipment Repairman	15
Auto Service Mechanic	27
Radio and TV Service	16
Welder	33
Secretary	130
Stenographer	22
Clerk Typist	19
Bookkeeper	23
Receptionist	33
P.B.X.	21
Cashier	18
Computer Programmer	24
Salesman	27
Travel Agent	17
Fashion Model	42
Library Assistant	25
Bricklayer	13
Carpenter	48
Electrician	27
Auto Body Repairman	19
Tool and Die Maker	11
Photographer	14
Baker	10

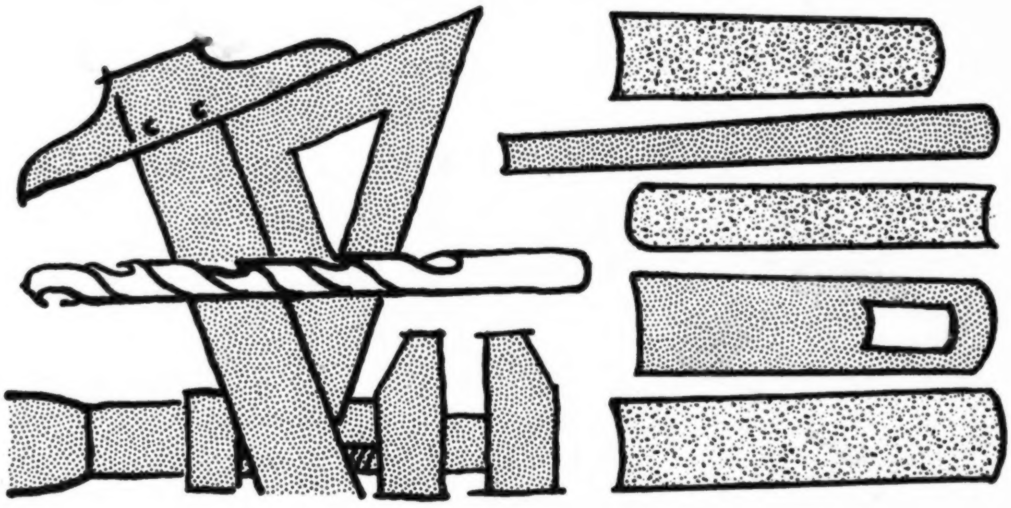
Summary

As indicated above 46 per cent of the students expressed an interest in a community college or vocational-technical school. In what type of occupation are they expecting preparation? By looking at each category we can see what some titles show much more interest than others.

In consideration of program establishment if a minimum enrollment of about twenty students per course is used it would appear, on the basis of the expressed interest of the students reporting, that Kirtland Community College and high schools might well consider the establishment of programs in the following areas:

1. Drafting
2. Chemical Technician
3. Surveying
4. Electronic Technology
5. Art (Design and Commercial)
6. Journalism
7. Auto Mechanics and Repair
8. Cosmetology
9. Secretarial Training
10. Distributive Education
11. Law Officer Training
12. Carpentry
13. Computer Operation

CHAPTER III



BUSINESS AND INDUSTRY

Business and Training Needs Survey

An important factor in improving present high school occupational offerings and planning post-high school programs is ascertaining the needs of business and industry for qualified employees. Inasmuch as the occupational structure has been changing rapidly since the 1930's, the number and character of entry jobs and the training needed has changed drastically. The simple jobs of "yesterday" no longer exist. The high school dropout can no longer be assured of finding "something to do" when he or she leaves school. Most job requirements are such that employers must insist that candidates possess the high school diploma and minimum skills if they are to be considered. In other cases advanced training beyond the high school is a necessity for filling the many highly technical positions of modern business and industry.

A primary purpose of the Business and Training Needs Survey was to determine the manpower needs of the businesses and industries in the four-county area. This survey was designed to aid the high schools, the intermediate district, and the new community college in planning occupational training programs and other services.

The survey instrument[1] was a questionnaire which was distributed to local employers in the four counties. In each of seven communities, namely, Fairview, Grayling, Houghton Lake, Mio, Roscommon, Rose City, and West Branch, an individual or individuals were hired to distribute and collect the questionnaires.

The questionnaire was divided into eleven basic occupational categories, namely: (1) Clerical occupations; (2) Sales occupations; (3) Service occupations; (4) Health Care occupations; (5) Manufacturing occupations; (6) Mechanics and Repairmen occupations; (7) Building Trades occupations; (8) Graphic Arts and Printing occupations; (9) Transportation occupations; (10) Utilities occupations; and (11) Agricultural occupations. Each was subdivided into selected job titles common to the category.

Nine basic questions were asked of each employer. These questions were: (1) Number now employed (by occupation); (2) Number current vacancies; (3) Estimated number of employees needed in next five years (full time); (4) Estimated number of additional employees needed during the summer; (5) Is this a hard to fill job? (6) Usual recruitment sources; (7) Educational preference for employees;

---

[1] See Appendix C

(8) Do you have your own training program? and (9) Would you be interested in additional training for these workers in an area school?

This section is devoted to the presentation of the data compiled from the questionnaire.

Extent of the Study

One of the perplexing problems of the researcher is to determine the extent of the population to be surveyed. The conclusions and recommendations in many business and industry studies are based on a 25 to 40 per cent questionnaire return. An attempt was made, in this study, to increase the percentage of questionnaires returned and thus improve the validity of the conclusions.

Areas with approximately the same numerical population were compared. It was estimated that from 500 to 600 businesses of one or more employees existed in the four counties. A printing of 600 questionnaires was made and they were distributed to the surveyors on the basis of estimates made from telephone directories. It was soon evident that more businesses existed in the area than originally estimated. A second printing of the questionnaire was authorized and approximately 900 questionnaires were distributed. The data presented are based on 704 questionnaires or a return of 78 per cent. It is assumed that some businesses were not contracted and some that did not respond would have, had a second personal contact been possible. The cooperation on the part of most businesses in the area was extremely gratifying and indicative of the desire of business and industry to participate in educational planning and future growth of the area.

Number of Employees

Table XIII shows the number of men, number of women and total for each of seven areas. The total number of employees tallied was 3,272 with 2,002 or 61 per cent being men and 1,270 or 39 per cent women. Grayling provided the largest number of employees with 841 or 26 per cent and Fairview the least with 214 or 7 per cent.

TABLE XIII

NUMBER OF EMPLOYEES

City	Men	Women	Total
Fairview	122	92	214
Grayling	523	318	841
Houghton Lake	210	129	339
Mio	433	185	618
Roscommon	248	209	457
Rose City	156	78	234
West Branch	310	259	569
TOTAL	2,002	1,270	3,272

Employment by Occupation and Sex

Table XIV shows the number, per cent, and total employment by occupational areas. Figure 2 graphically shows the total employment in each area. Of the 3,272 employees tabulated 764 or 23.3 per cent were found to be in the service area. Clerical employees were next with 669 or 20.4 per cent followed by manufacturing with 511 or 15.6 per cent and sales with 390 or 11.9 per cent. The least number of employees was found in the graphic arts and printing area with only 23 or .7 per cent. In the clerical area the females outnumbered the males by better than 2 to 1 and in health care by 7 to 1. In manufacturing, mechanics and repairmen, and in the building trades areas less than 1 per cent of the employees were women.

TABLE XIV
OCCUPATIONAL EMPLOYMENT BY SEX AND TOTAL

Occupation	Male	Per Cent	Female	Per Cent	Total	Per Cent of Total Employees
Clerical	209	31.2	460	68.8	669	20.4
Sales	215	55.1	175	44.9	390	11.9
Service	371	48.6	393	51.4	764	23.3
Health Care	27	12.6	188	87.4	215	6.6
Manufacturing	507	99.2	4	.8	511	15.6
Mechanics and Repairmen	114	99.1	1	.9	115	3.5
Building Trades	233	99.6	1	.4	234	7.2
Graphic Arts and Printing	21	91.3	2	8.7	23	.7
Transportation	201	98.1	4	1.9	205	6.3
Utilities	46	54.8	38	45.2	84	2.6
Agriculture	58	93.5	4	6.5	62	1.9
TOTAL	2,002	61.2	1,270	38.8	3,272	100.0

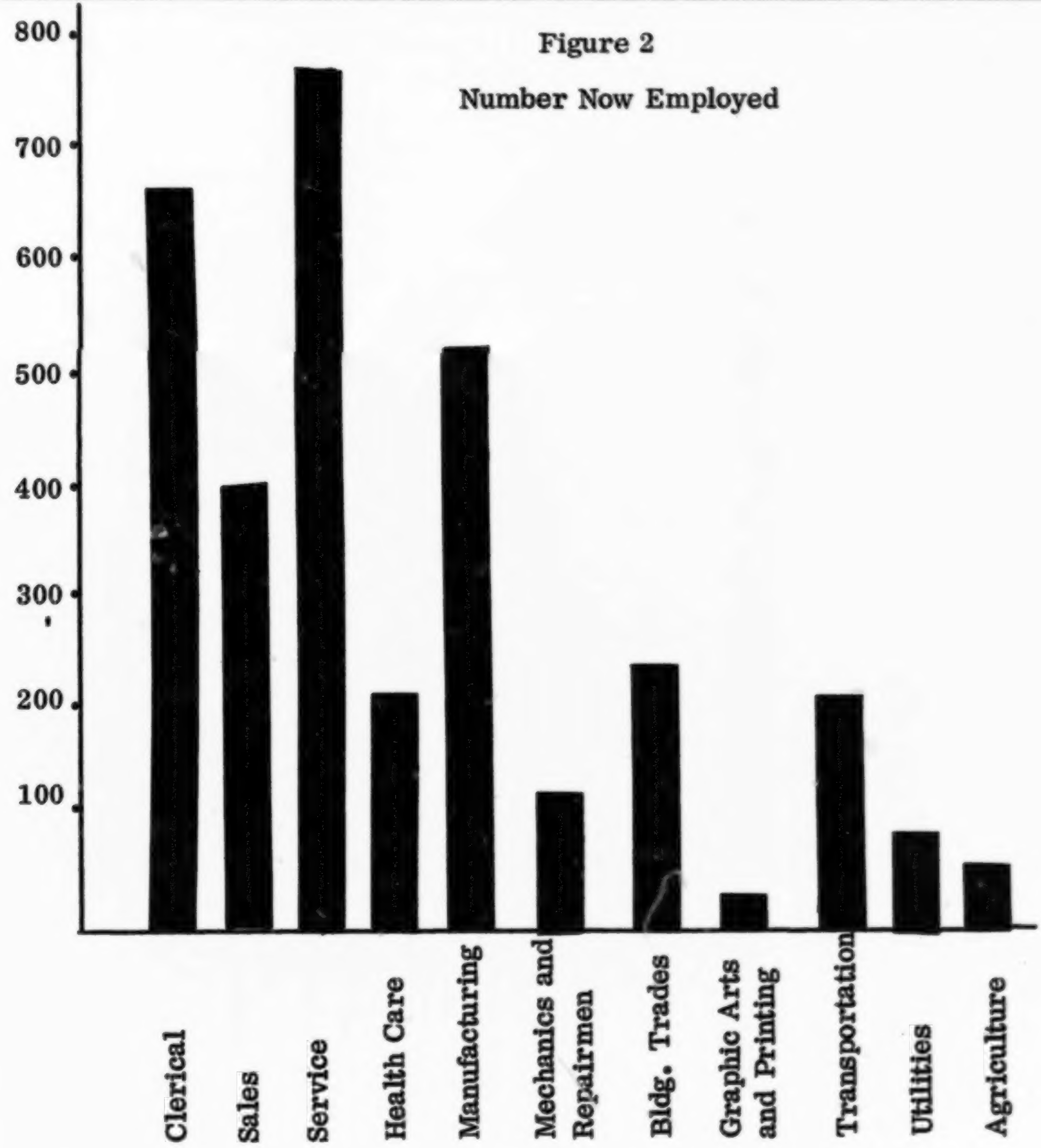


Figure 2

Number Now Employed

Current Vacancies

Table XV shows the number and per cent of vacancies in each of the occupational categories. Figure 3 graphically presents the data. Of the 202 vacancies 62 or 30.7 per cent were in the service area and 43 or 21.3 per cent in the building trades. Few vacancies appear in the health care, graphic arts and printing, utilities, and agricultural areas. If one combined the clerical, sales, and service areas the total number of vacancies was 96 or 47.5 per cent and if one combined the manufacturing, mechanics and repairmen, and building trades, the number of vacancies was 80 or 39.6 per cent.

TABLE XV

NUMBER OF CURRENT VACANCIES

Occupation	Vacancies	Per Cent of Total
Clerical	18	8.9
Sales	16	7.9
Service	62	30.7
Health Care	1	.5
Manufacturing	13	6.4
Mechanics and Repairmen	24	11.9
Building Trades	43	21.3
Graphic Arts and Printing	2	1.0
Transportation	15	7.4
Utilities	4	2.0
Agriculture	4	2.0
TOTAL	202	100.0

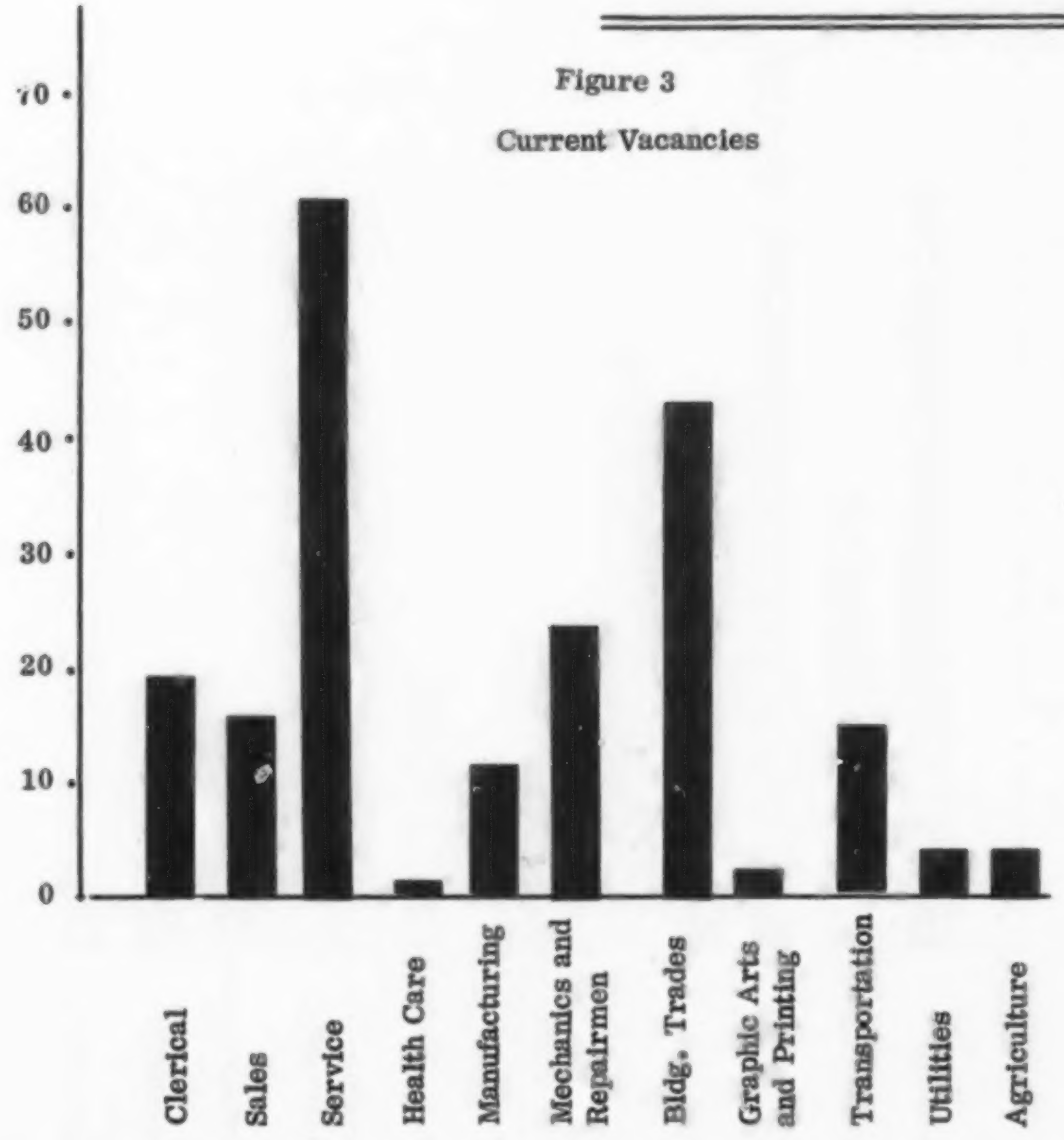


Figure 3

Current Vacancies

Replacement and Expansion Needs

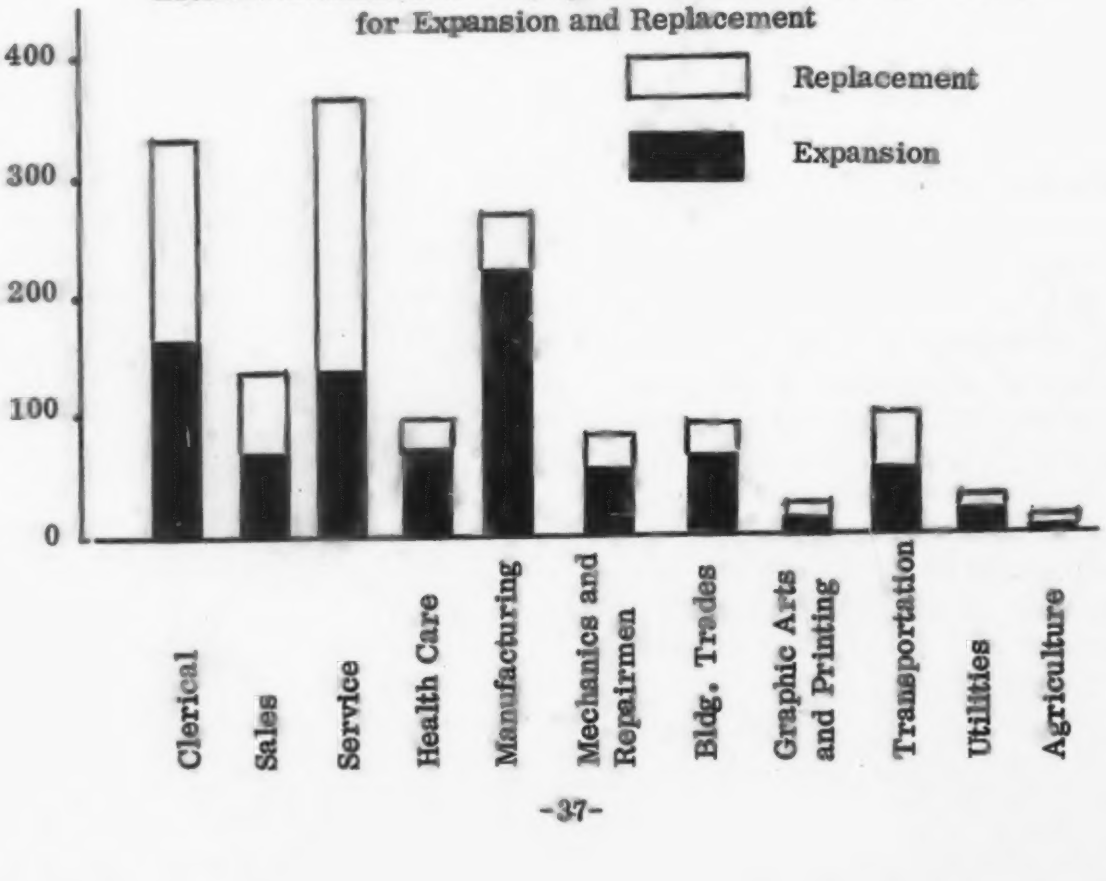
In planning educational programs that are to become operational during the next decade important clues as to kind and extent may be found by examining the replacement and expansion needs of the area's business and industry. Because of the large tourist and recreation business attention must be given also to the seasonal employees. Table shows the expansion, replacement, and summer employment needs in the various occupational categories. Figures 4 and 5 show graphically the same data. The service area shows a need of

TABLE XVI
ESTIMATED NUMBER OF EMPLOYEES
NEEDED IN NEXT FIVE YEARS

Occupation	Expansion	Replacement	Summer Employees	Total
Clerical	162	166	82	410
Sales	68	64	78	210
Service	132	235	198	565
Health Care	89	11	13	113
Manufacturing	218	37	19	274
Mechanics and Repairmen	51	24	17	92
Building Trades	65	24	63	152
Graphic Arts and Printing	8	7	1	16
Transportation	36	56	28	120
Utilities	11	3	6	20
Agriculture	3	3	4	10
TOTAL	843	630	509	1,982

Figure 4

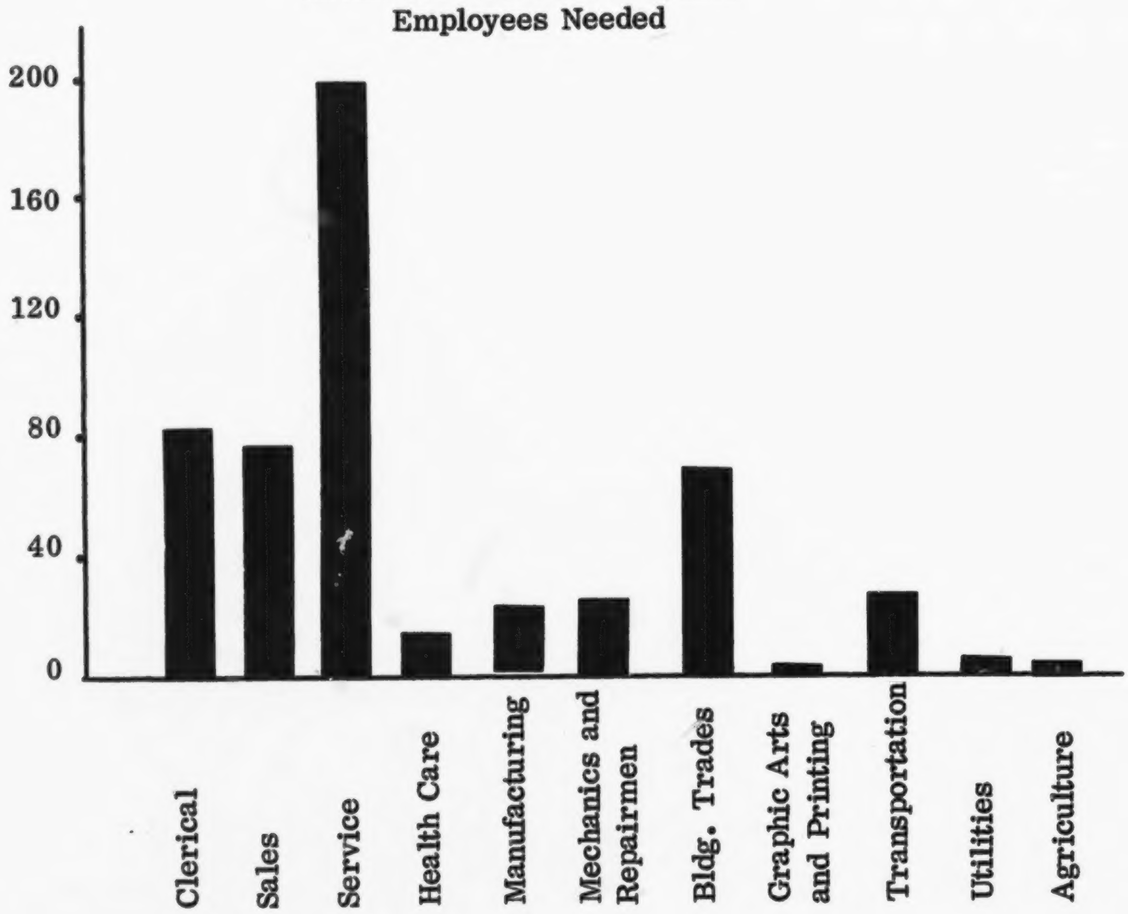
Estimated Number of Employees Needed in Next Five Years for Expansion and Replacement



235 employees for replacement and 132 for expansion while the clerical category shows a replacement need of 166 and an expansion need of 162. The greatest need in summer employment is in the service area with 198; next is clerical needing 82; sales 78; and building trades 63. The least needs in expansion, replacement, and summer employment are in the graphic arts and printing, utilities, and agricultural categories. Manufacturing shows an expansion need of 218 to lead all categories in this respect. Health care, mechanics and repairment, building trades, and utilities all show a healthy relationship between replacement and expansion needs and indicate growing employment categories.

Figure 5

Estimated Additional Summer Employees Needed

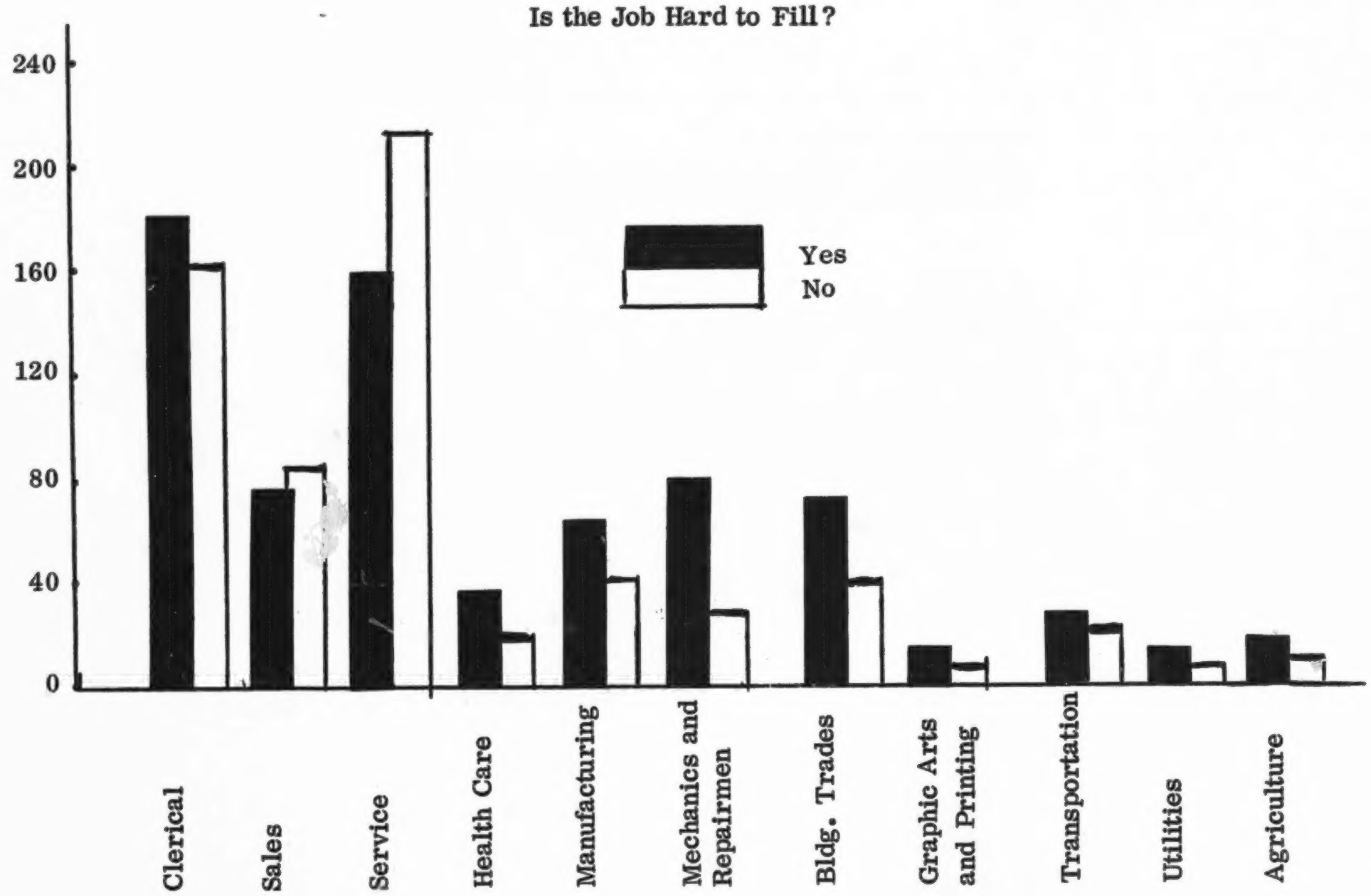


Is the Job Hard to Fill?

If present recruiting sources provide an adequate number of employees in all areas then there is little if any need for expending additional money for upgrading present training programs or implementing new ones. Figure 6 shows the opinions of employers in this regard. In all categories, except sales and services, the majority of employers agree that the jobs are hard to fill. In the areas of health care, mechanics and repairmen, building trades, and manufacturing a very substantial majority of employers reporting are experiencing difficulty in recruiting. In sales and services, even though less recruiting difficulty is noted, the larger numbers involved indicate that training programs could be justified and should be implemented.

Figure 6

Is the Job Hard to Fill?



Usual Recruitment Sources

If employers indicate substantial recruiting from out-of-the-area agencies and if little recruiting difficulty is noted then less concern need be shown for local training programs. Even in "hard to fill" categories, if the primary recruitment sources are out-of-the-area, it might be better to improve the already existing training programs and to continue to recruit from them. In the case of the four-county study area it appears that many of the jobs are hard to fill and that most employers prefer to utilize area agencies for recruiting. Figures 7 and 8 graphically show the hiring practices. Eighty-five per cent of the employers responding indicated either hiring locally or upgrading present employees. Only in health care, graphic arts and printing, and agriculture categories do employers show major recruitment sources as being out-of-the-area.

Figure 7

Usual Recruitment Sources

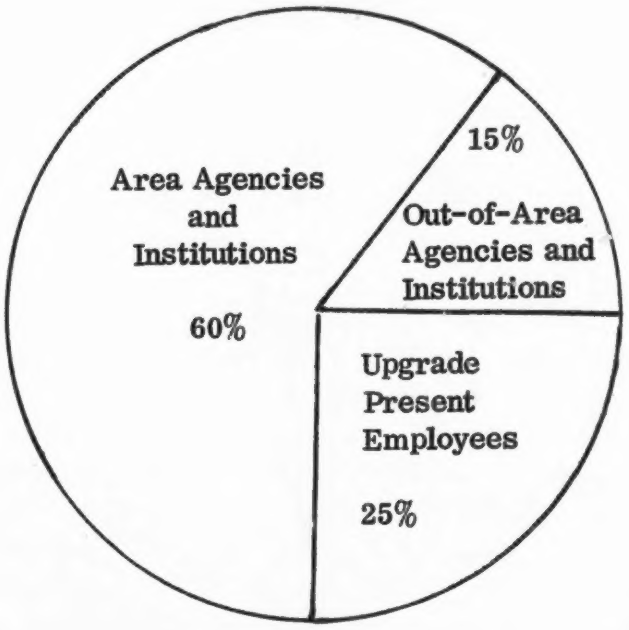
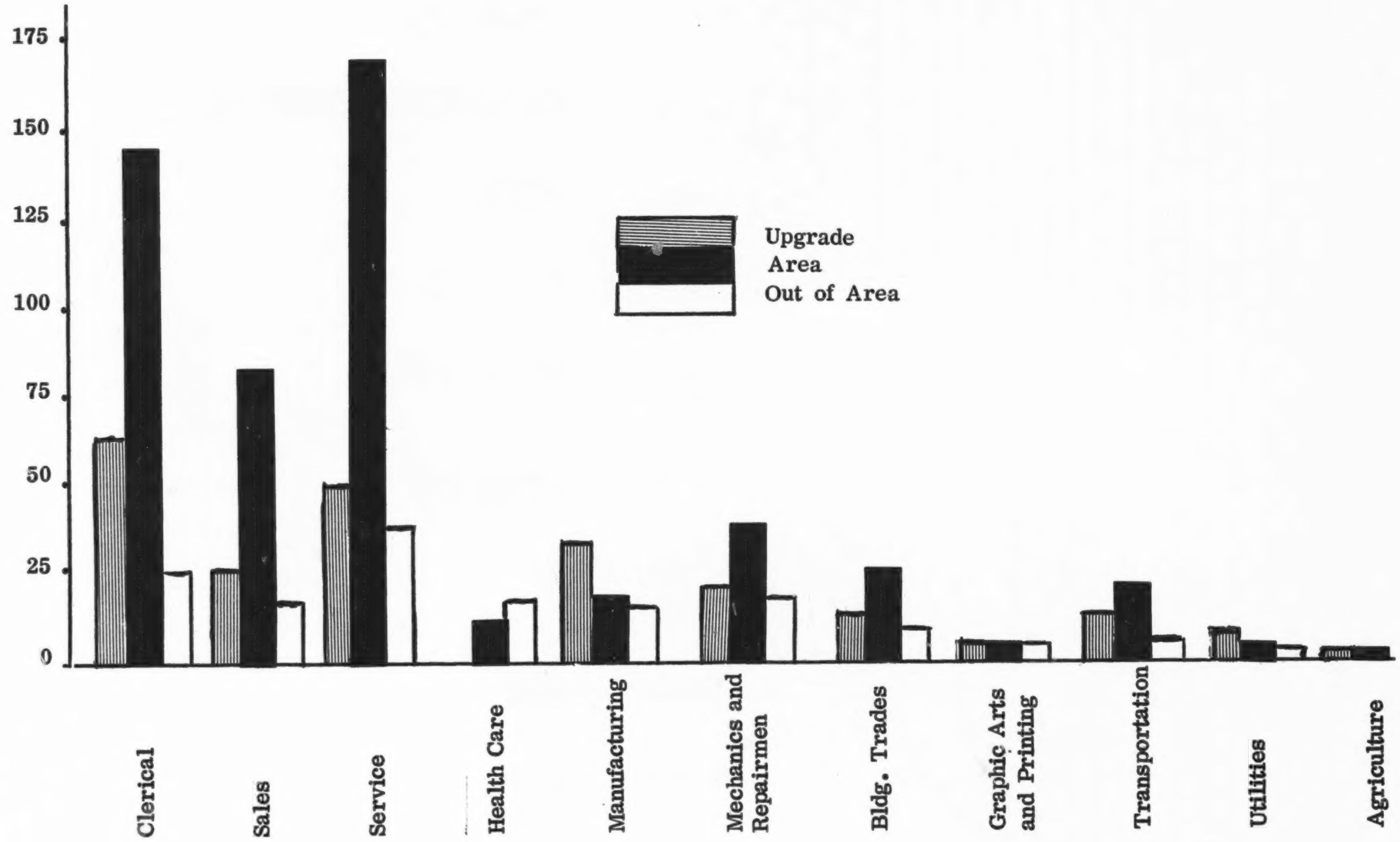


Figure 8

Usual Recruitment Sources by Occupation



Educational Preferences

It is important to determine the thinking of employers in regard to the educational level of prospective employees. If the demand is for a person with the bachelor's degree then additional funds need to be expended for expanding the training programs of out-of-area agencies. If the educational level needed is at the high school and post high school but less than the bachelor's degree then it becomes much more feasible to upgrade existing programs and implement new ones within the four-county area. Table XVII and Figure 9 show employer preference by occupational category and totally. Ninety-seven per cent of the responses indicated a need for less than a bachelor's degree training program. Four hundred eleven or 30 per cent of the responses indicated a preference for some training above the high school level but less than the college degree. The service area was the only category to show a substantial number of preferences, ninety-nine, for training with less than a high school diploma. None of the employers responding in the utility area felt they could accept preparation of less than the high school completion.

Figure 9

Educational Preference

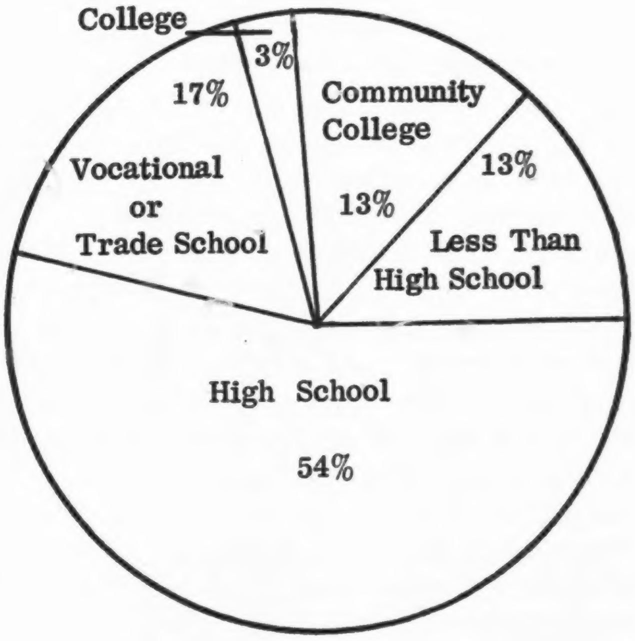


TABLE XVII

EDUCATIONAL PREFERENCE BY OCCUPATION

Occupation	Educational Preference				
	Less Than High School	High School Graduate	Vocational or Trade School	Community College	College Graduate
Clerical	27	160	25	99	18
Sales	17	134	11	14	7
Service	99	225	50	8	1
Health Care	3	13	16	8	7
Manufacturing	8	38	36	36	6
Mechanics and Repairmen	5	44	46	5	0
Building Trades	8	48	39	5	0
Graphic Arts and Printing	3	4	7	1	0
Transportation	4	42	2	0	1
Utilities	0	9	2	0	2
Agriculture	2	11	1	0	3
TOTAL	176	728	235	176	45

Company Training Programs

Almost everyone accepts the concept that training is needed for job proficiency. The problem becomes one of who is to provide the training, where is it to occur, and who is to pay for it. If training' is needed, if recruitment sources are substantially local, if present programs are inadequate, and if public agencies can perform a better and/or less costly service then the problem becomes a direct concern of the organizations sponsoring this study. TableXVIII and Figure 10 show employer responses to the question, "Do you have your own training program?" All occupational categories, except health care, mechanics and repairmen, and building trades, showed employers with training programs exceeding those without. Seven hundred eighty-nine or 62.1 per cent of the responses checked "yes" and 482 or 37.9 per cent checked "no." Training programs in utilities, agriculture, service, and sales categories were most common percentage-wise.

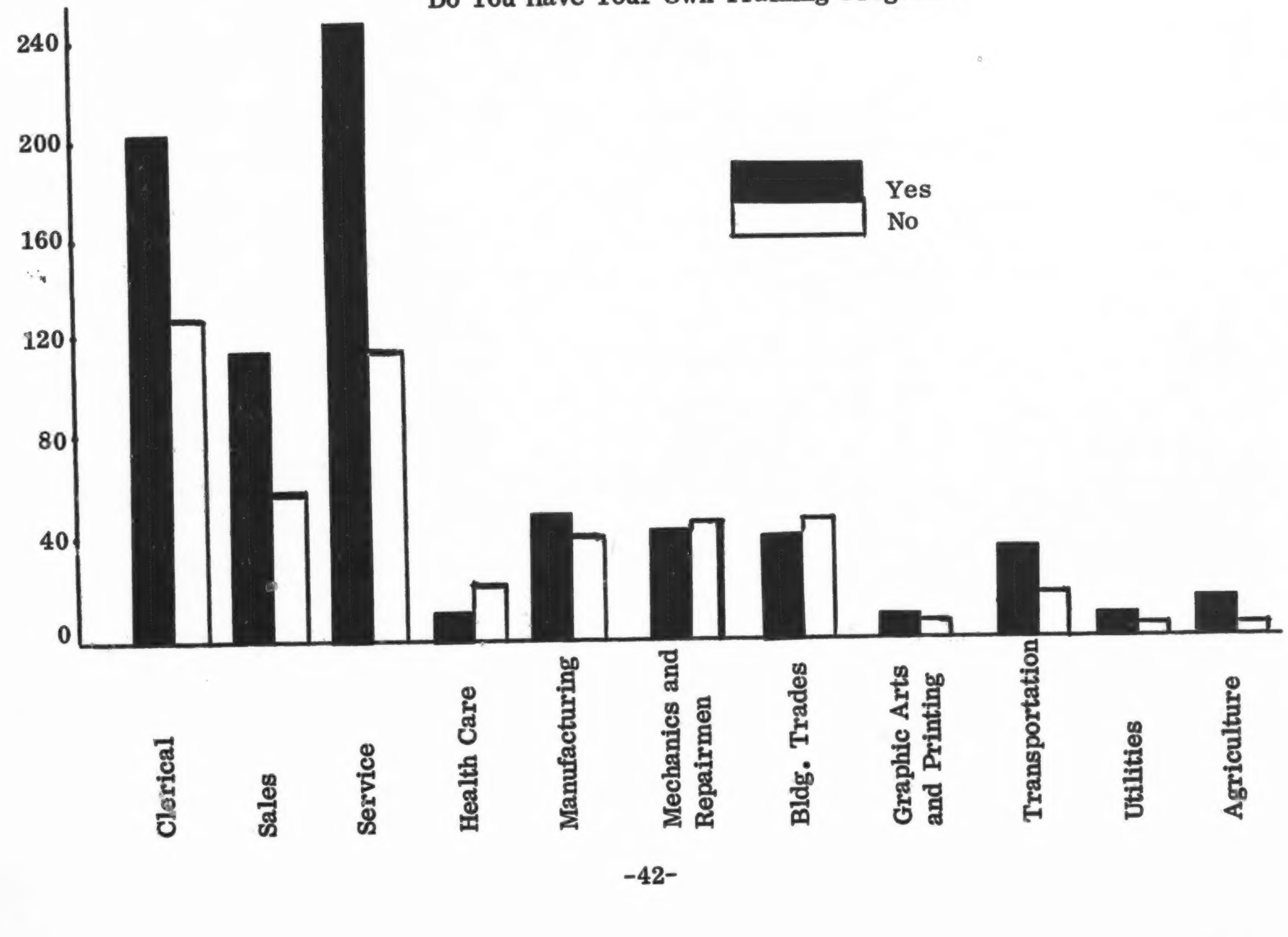
TABLE XVIII

DO YOU HAVE YOUR OWN TRAINING PROGRAM?

Occupation	Yes	Per Cent	No	Per Cent
Clerical	211	62.4	127	37.6
Sales	115	67.6	55	32.4
Service	249	68.2	116	31.8
Health Care	13	37.1	22	62.9
Manufacturing	55	58.5	39	41.5
Mechanics and Repairmen	43	48.3	46	51.7
Building Trades	42	46.7	48	53.3
Graphic Arts and Printing	7	63.6	4	36.4
Transportation	35	66.0	18	34.0
Utilities	6	75.0	2	25.0
Agriculture	13	72.5	5	27.5
TOTAL	789	62.1	482	37.9

Figure 10

Do You Have Your Own Training Program?



Interest In Additional Employee Training

Support of public educational programs from business and industry is needed if they are to be successful. Table XIX and Figure 11 show employer attitudes toward additional training. Seven hundred thirty-two responses indicated a need for additional preparation with the clerical and service area leading with 27.6 per cent and 23.9 per cent, respectively. The total "yes" response for the clerical, service, and sales areas was 457 and that for manufacturing, mechanics and repairmen, and building trades was 195. Employer interest seems substantial in the above mentioned occupational clusters.

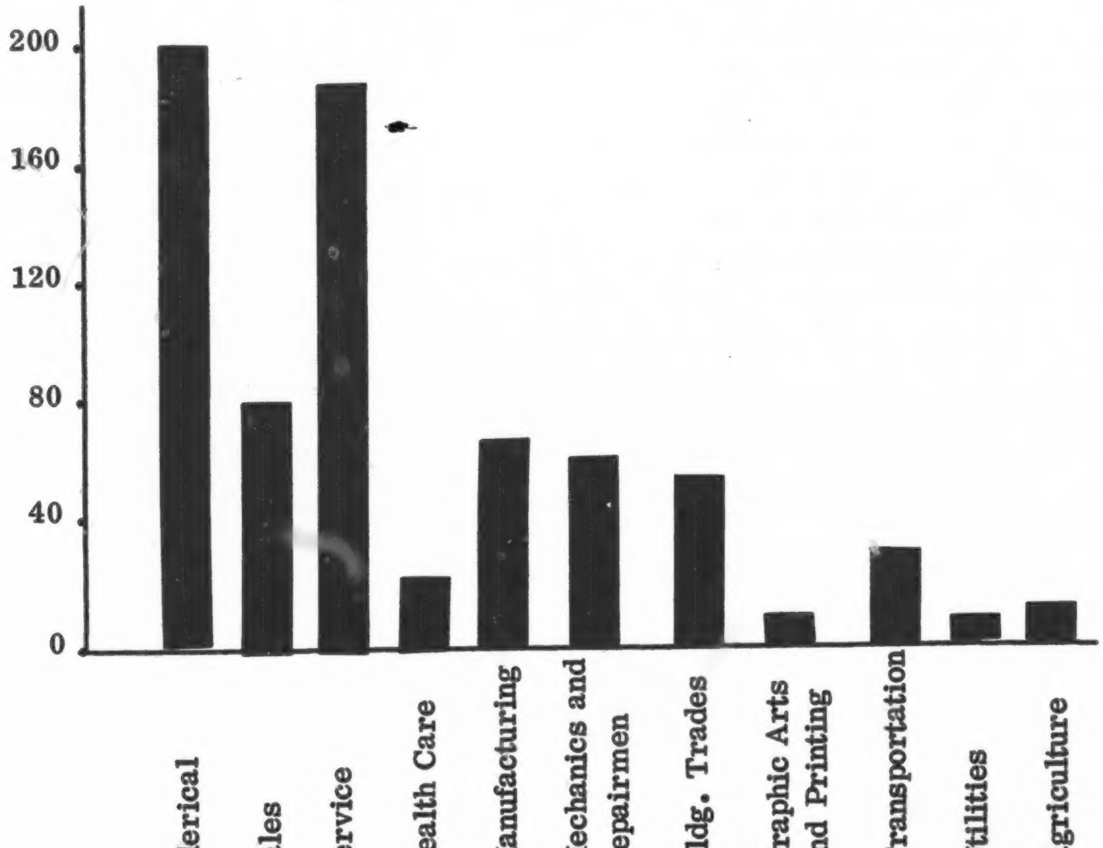
TABLE XIX

EMPLOYERS WANTING AREA SCHOOL FOR TRAINING

Occupation	Number of Employers	Per Cent
Clerical	201	27.6
Service	175	23.9
Sales	81	11.0
Manufacturing	67	9.1
Mechanics and Repairmen	66	9.0
Building Trades	62	8.5
Transportation	31	4.2
Health Care	24	3.2
Agriculture	11	1.5
Utilities	7	1.0
Graphic Arts and Printing	7	1.0
TOTAL	732	100.0

Figure 11

Employers Wanting Area School for Training



Interest in Participating in Planning Programs

Another way of determining feasibility is to ask employers if they would be willing to serve on a committee for planning occupational training programs. One hundred fifty-three of the 704 responding employers, or 22 per cent, checked that they would be willing to serve on a planning committee, The names of the employers and the company that each represented is included in Appendix D. Such substantial willingness to serve indicates the interest and needs that employers apparently feel in regard to improved or new occupational training programs.

Most Often Mentioned Jobs

Program planners may glean much additional information from the responses to the questionnaires. Additional detail in this report would considerably increase the volume. However, Table XX is included to show the present employment for five or less most often mentioned jobs in each of the occupational categories. The ten leading jobs for all categories were (1) retail salesperson--225, (2) waiter/waitress--130, (3) bus driver--96, (4)(5) bookkeeper and janitor--88, (6) cashier--78, (7) nurse's aid--75, (8) automobile mechanics--65, (9) assembler--62, and (10) secretary--59.

Summary

One of the ways of determining the need and the extent of improved occupational training is to survey the existing business and industry. This was accomplished by preparing a survey instrument and having it distributed and collected by responsible cooperators in each of seven municipalities. The business community willingly provided the information and more than three-quarters of all businesses and nearly 100 per cent of the major employers in the area are included in this study. A total of 704 businesses with a labor force of 3,272 is included. Sixty-one per cent of the employees were men and 39 per cent were women. The service, clerical, and sales areas provided 56 per cent of the employees and the manufacturing, mechanics and repairmen, and building trades 26 per cent. The total vacancies were 202 with the greatest number occurring in the service area with 62 and the least in health care with one. Employers reported replacement needs during the next five years totaling 630 and expansion needs of 843. Additional employees needed during the summer totaled 509. A majority of the employers felt jobs were "hard to fill" with the greatest difficulty occurring in the mechanics and repairmen and building trades industries. Employers prefer to hire locally with 85 per cent either hiring locally or upgrading present employees. Employers were almost unanimous in preferring high school graduates or people with post high school training but less than the bachelor's degree. Employers felt they could utilize people with less than the high school diploma in 176 positions. Sixty-two per cent of the businesses indicated they have a training program for their employees but in 732 instances an interest in additional training programs was indicated. One hundred fifty-three of the employers responding checked they would be willing to serve on an occupational training planning committee.

TABLE XX

MOST OFTEN MENTIONED JOBS IN EACH CATEGORY

	Men	Women	Total
Clerical			
Bookkeeper	11	77	88
Cashier	17	61	78
Stockboy	56	7	63
Secretary	4	55	59
Clerk-typist	3	44	47
Sales			
Retail Salesperson	86	139	225
Real Estate Salesman or Broker	30	6	36
Sales Manager	15	4	19
Service			
Waiter/Waitress	3	127	130
Janitor	71	17	88
Cook or Chef	12	49	61
Hotel/Motel Housekeeper	12	39	51
Service Station Attendant	43	1	44
Health Care			
Nurse's Aide	0	75	75
Nurse (Practical)	0	36	36
Nurse (Registered)	0	33	33
Manufacturing			
Assembler	58	4	62
Machine Operator	57	0	57
Machine Tool Operator	34	0	34
Mechanics and Repairman			
Automobile Mechanic	65	0	65
Building Trades			
Carpenter	43	0	43
Laborer	40	0	40
Painter	12	0	12
Heavy Equipment Operator	12	0	12
Graphic Arts and Printing			
All-round Printer	10	0	10
Transportation			
Bus Driver	93	3	96
Truck Driver (Local)	27	0	27
Truck Driver (Over-the-Road)	11	0	11
Utilities			
Telephone Operator	0	38	38
Lineman and Cable Splicer	13	0	13
Substation Operator	11	0	11
Agriculture			
Nurseryman	8	0	8

CHAPTER IV

FINANCING

Determining Costs

Area vocational-technical education programs are defined as those providing organized, systematic instruction for preparing individuals for useful employment in recognized occupations. People in at least the following three categories need to be served.

a. Persons who have completed or left high school and who are available for full-time study in preparation for entering the labor market.

b. Persons who are enrolled in high school.

c. Persons who have already entered the labor market and who need training or re-training to achieve stability or advanced employment.

A first step in the establishment of a program is to determine the need for it. The research conducted and described in the preceding sections of this report clearly indicate the occupational training needs of the area. Next, one must establish the various organizational alternatives and the advantages and limitations of each. Key factors are the depth and breadth of program desired and the ability to finance it. Several organizational patterns are possible though some have more advantages than others. Following are several alternative plans.

a. Each high school in the area continue as is with much the same program and/or programs. Improvements to be made are on an individual school basis within the financial resources of each district.

b. Establishment of a vocational-technical center or centers. Students from other high schools would be transported to the center or centers for occupational training. A financial agreement would be worked out by the participating schools.

c. Establishment of an area vocational-technical school to serve the needs of the four counties. A separate facility would be constructed with it and the resulting program financed by millage applied to property in the entire area.

d. Establishing a vocational-technical program as a part of the Kirtland Community College. Students would be transported to the college site and the program financed through the legal provisions available to community colleges.

Since the report of the Community College Feasibility Study included vocational-technical education as an important part of the community college program and apparent attitudes of school officials and citizens indicate the acceptance of the community college district as the way to plan and finance improved occupation training it is assumed that the plan outlined in (d) above will become the established plan for the study area.

In estimating costs one must use projected enrollments and tentative programs. Financial support will be derived from local taxation, state and federal assistance, and individual and corporate help. The existing tax structure and anticipated legislation must be considered. Changes in State Equalized Valuation need to be projected. Estimated costs and financial resources need to be projected for both operations and capital outlay. Since the variables are in a constant state of change the designated officials in charge of program implementation need to continuously appraise and reappraise. Planning may appear to be only an educated guess but current and continuous reappraisals will offer dividends in improved programs at less cost.

A detailed analysis and projection of population was prepared for the Community College Feasibility Study.[1] The projections[2] show the number of 18 and 19 year-old youths to average about 1,000 through 1972. The ratio of community college enrollment to 18 and 19 year-olds was estimated to average 40 per cent thus indicating an enrollment potential of approximately 400. The projection of the number of high school graduates also indicates a potential of about 400. The feasibility study concluded[3] that the minimum population requirements of 800 or more late teen-agers for a community college was present. Most of the enrollment potential have indicated occupational goals within the range of vocational-technical program.

Financing a community college with an occupational training program for both high school and post high school students is no easy task. It is especially difficult in an area with a minimum population and limited resources. Certainly the ingenuity of the Controlling Board and the Administrative staff will be tested. Since a grant for master planning is expected less detail will be presented in this report. The kind of plant designed and the scope of the program will be key factors in determining costs and will have to be answered finally by the Controlling Board.

The 1966 State Equalized Valuation for the four-county area was $115,387,727. Since a 1-mill levy was voted an income in excess of $100,000 may be expected from the property tax this year. This should increase to approximately .1 of one per cent of the SEV as determined each year less the uncollectable taxes. The state aid in 1967-68 for a full-time equated student is $325 and if enrolled in a vocational-technical program $350. Additional start-up funds of $75 per membership allowance or 50 per cent of total operating costs, which ever is greater, are available this year. Tuition in the neighborhood of $300 per student, per year will need to be charged. On the basis of the above a per pupil expenditure of nearly $1000 could be achieved. For a satisfactory program to develop from the standpoint of both the student and hiring officials the above expenditure level should be planned. In fact some estimates of an adequate expenditure level for vocational-technical programs exceed the above by 50 per cent or more. Table XXI shows a tentative distribution of resources. Grants from business and industry or government may reduce costs and/or provide enrichment.

Funds to construct the plant will be provided by the local property tax and grants from the State. Aid from private and other governmental agencies may help shift some of the costs from the local taxpayer. The master plan and educational specifications will show the space requirements and the kind of construction desired. When these decisions have been made an adequate translation into dollars and cents is possible.

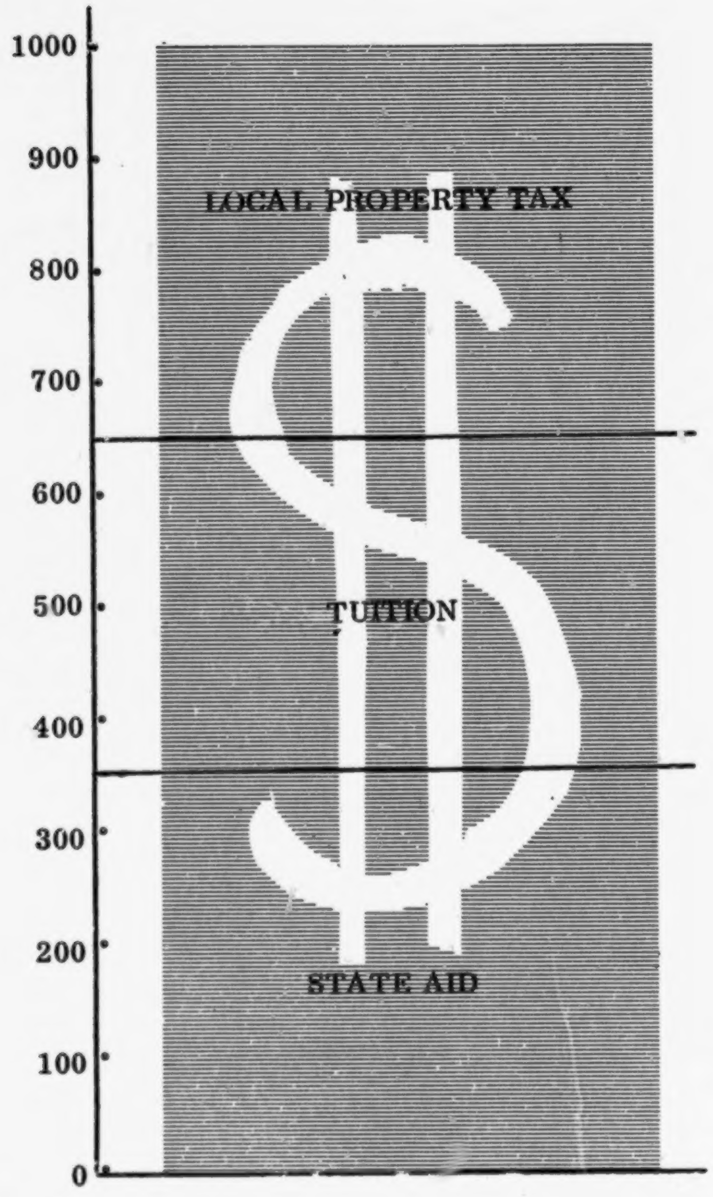
[1] Four County Community College Feasility Study, Final Report, Citizens Advisory Committee, 1965.

[2] Ibid., pp. 20, 23.

[3] Ibid., p. 24.

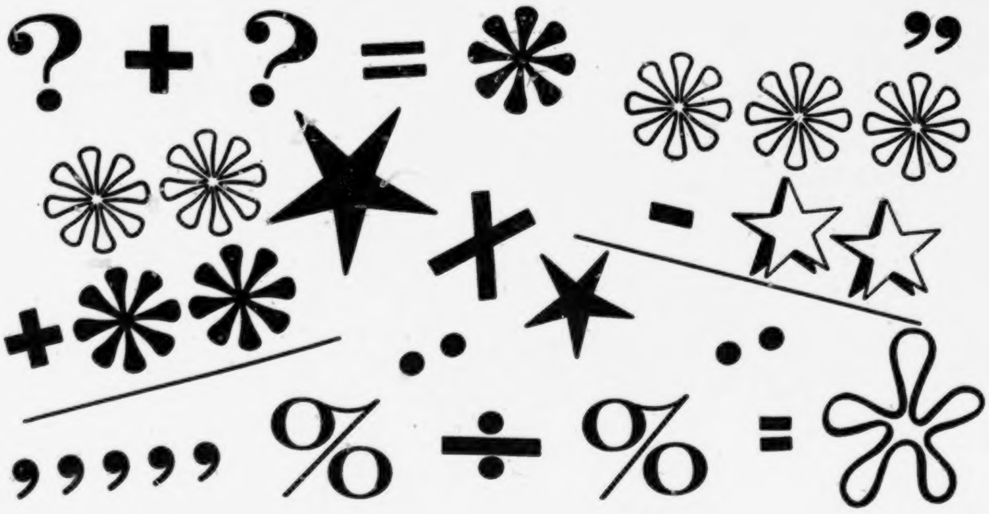
TABLE XXI

PER PUPIL COSTS



N

CHAPTER V



SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Need for School in Area

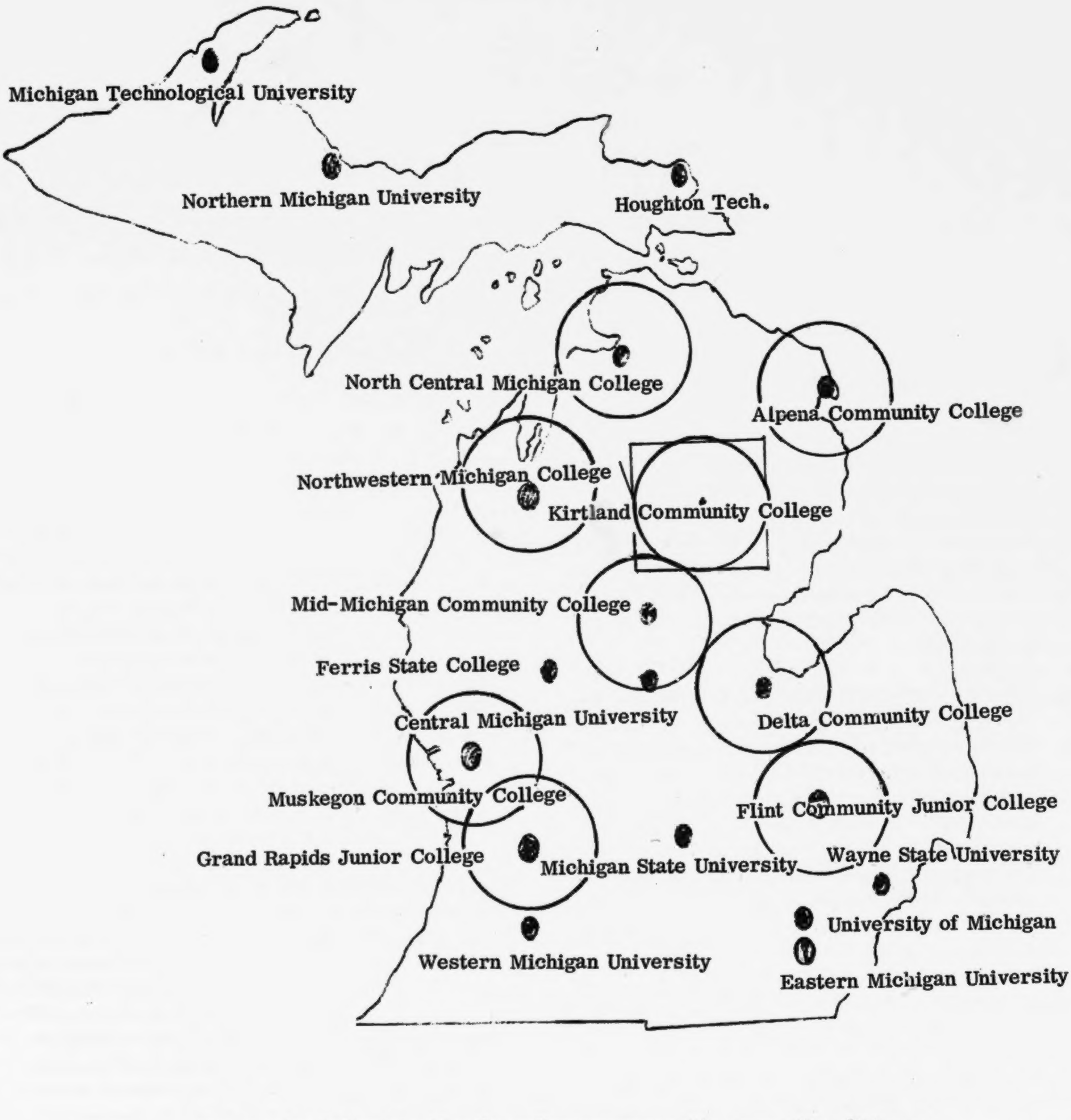
This study primarily concerns the need for vocational-technical education in the Kirtland Community College District. A rather extensive investigation has been conducted of the local educational (K-12) systems; the Area Business-Industry needs and resources; the student interests in careers; and the role of various educational agencies in meeting these needs.

One important factor in determining the feasibility and need for a community college and area vocational-technical program located in the area is the location of and/or availability of needed services from adjacent districts or areas. The following sketch map indicates the relative distances from existing programs. An analysis of the situation would seem to indicate that this area is beyond a reasonable daily commuting distance from any post-high school programs. It also indicates that no vocational programs, either high school or post-high school are within a reasonable commuting distance.

For practical purposes a radius of 25-30 miles is considered the reasonable limit in commuting distance. This is reasonable for two reasons, cost and safety. Beyond this radius a commuter would be driving 50-60 miles per day. At an estimated cost of 10¢ per mile and 180 days per year this cost of transportation would be approximately $1080. The average time on the road per day would be one to two hours. If this time is calculated at minimum wage rates the time is worth another $300 to $400. When board and room is added to this, even though at home, the costs are considerable. Even more important is consideration of the safety hazard of being on the public highways in all kinds of weather. The cost and safety hazard when compared to the cost of resident dormitory services, board and room, at one of Michigan's colleges which is less than $1,000 would indicate that probably 20 to 25 miles would be the more realistic limit for a commuter college. The cost of board and room should be considered even though the student lives at home.

It is obvious that very adequate college and university programs are available to the collegiate students of this area. The existing colleges could undoubtedly be expanded to accommodate the additional students from this area who can profit from a collegiate education more economically than by the establishment of another junior or senior level college. In conclusion, then, it appears that there is not a vital need in this area for a community college-transfer program because this educational opportunity is available elsewhere and at probably a more reasonable cost to the

COLLEGES AND UNIVERSITIES OF MICHIGAN


Michigan Technological University
Northern Michigan University
Houghton Tech.
North Central Michigan College
Alpena Community College
Northwestern Michigan College
Kirtland Community College
Mid-Michigan Community College
Ferris State College
Central Michigan University
Delta Community College
Muskegon Community College
Flint Community Junior College
Grand Rapids Junior College
Michigan State University
Wayne State University
University of Michigan
Western Michigan University
Eastern Michigan University

The circles indicate a 25 mile radius or reasonable commuting distance.

local and state taxpayers than can be done in the area.

In the career education and occupational skills areas a very significant factor is evident. There are no vocational-technical education opportunities available to students in this area. The established public vocational-technical schools are much beyond a reasonable commuting distance for residents of the area. Neither is there housing available such as is the case on the collegiate college campuses.

Another significant factor seems to be that it is either impossible or impractical for each K-12 school system to provide the needed vocational-technical programs to meet both the high school and post-high school needs. In fact there is no evidence that these needs are being met locally even in the large metropolitan districts where it is not a matter of student population justification. The factors of availability of opportunity, student population to justify program and economics would all indicate that if vocational-technical educational opportunities are to be made available to the people and students of this area, programs must be provided within the area. Programs are not available elsewhere at reasonable costs or convenience.

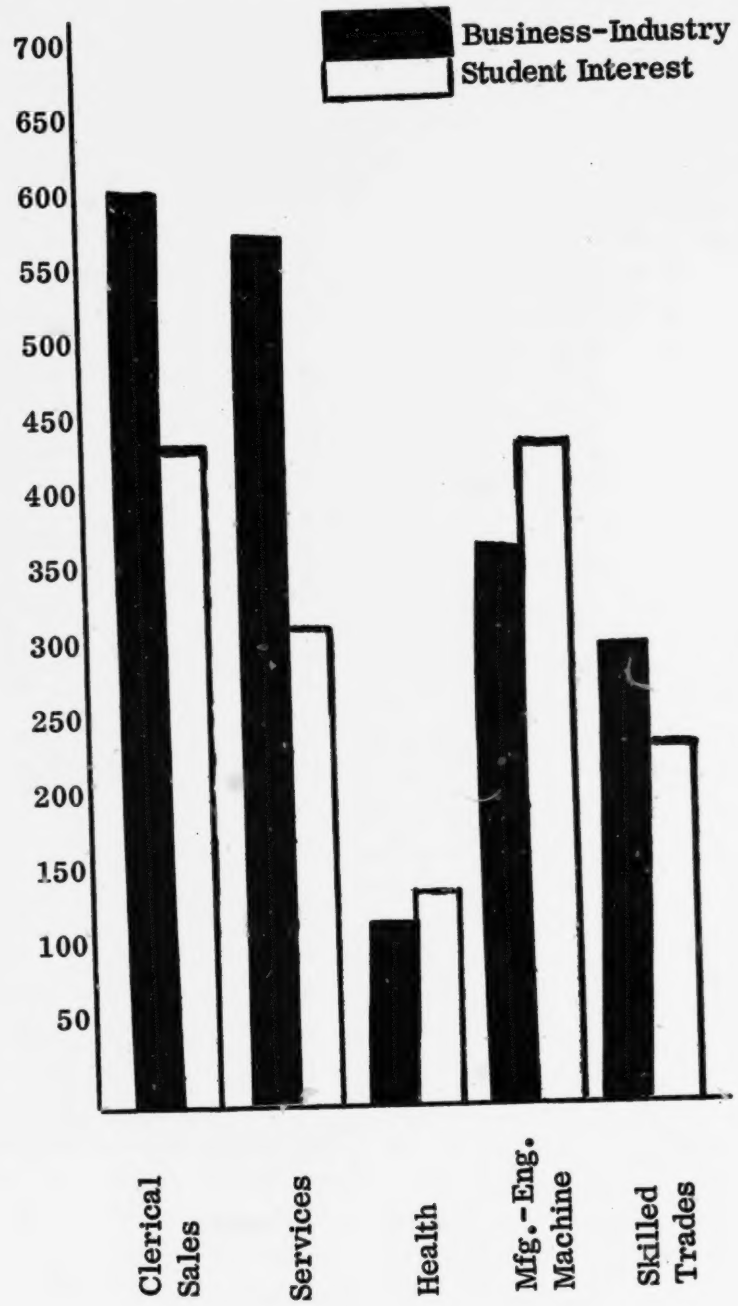
Business-Industry Needs

The study of business and industry needs and student career interests indicate a high ratio of agreement. The following Graph I indicates the relationship of need by employers and interests in career preparation by students.

This would seem to indicate, at least, that if students had the opportunity to prepare for careers either at the high school level, partially or terminally, or at the post-high school level there would be job opportunities locally.

Graph I

Business-Industry Need
and Student Interest

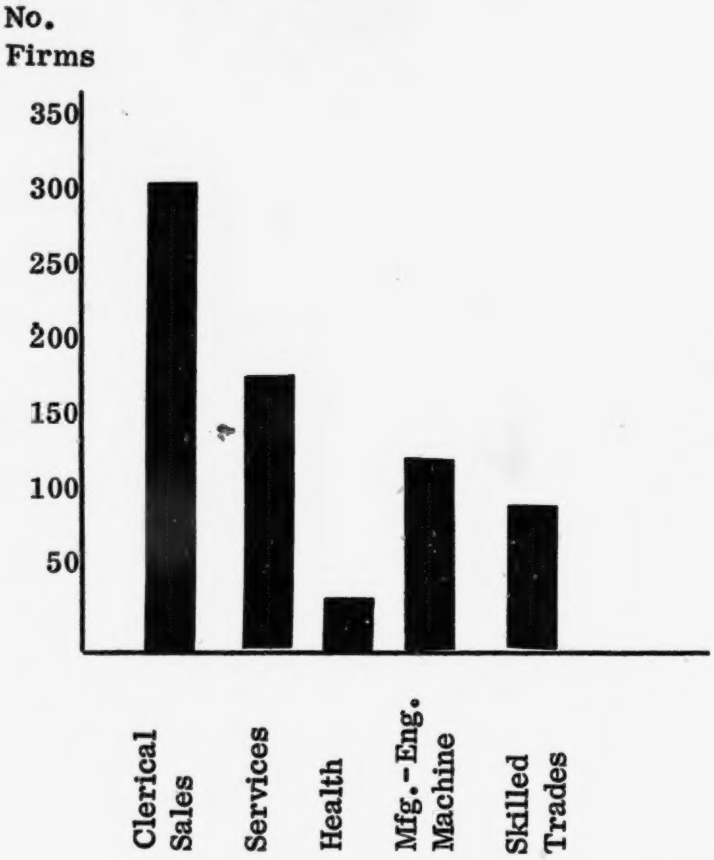


The study further indicates that the business-industry leadership in the community senses a need for continuing education or help to up-grade their employees. The following Graph II indicates the relative expression of need in the various business-industry classifications.

It is important to bear in mind that not all students desire to remain employed in the local community and that promotion may suggest preparation for competative employment elsewhere.

Graph II

Need for Continuing Education by Business-Industry



Future Employment Needs

A survey of future employment needs on a state or national scope indicates a close relationship to local needs which give credence to the value of offering career preparation in a wide range of job titles. This is an important consideration in promotion and advancement in a career for those students who may desire to leave the community or conversely for those who leave and then desire to return. The following chart indicates the predicted increases by occupational title. The titles with the ●(dot) preceeding them indicate those occupations which could be practically prepared for through a planned cooperative high school and/or vocational-technical programs in the Kirtland Community College District. These para-professional occupations are based upon specialization which is either below the collegiate degree, degree level, or supplementary to career maintenance after initial employment.

It is difficult to predict for a long period of time what the needs of an area or the nation will be. It appears that the only predictable factor is that specific employment competencies will change. At the present time there appears to be several basic areas of employment need, locally and at the national level. These have been indicated by the Business-Industry Survey and the Student Interest Inventory. Graph I indicates the degree of relationship between local business and industry need and student interest. It is quite apparent that a significant interest and job opportunity does exist and that kindred career opportunities can be provided for in these broad categories.

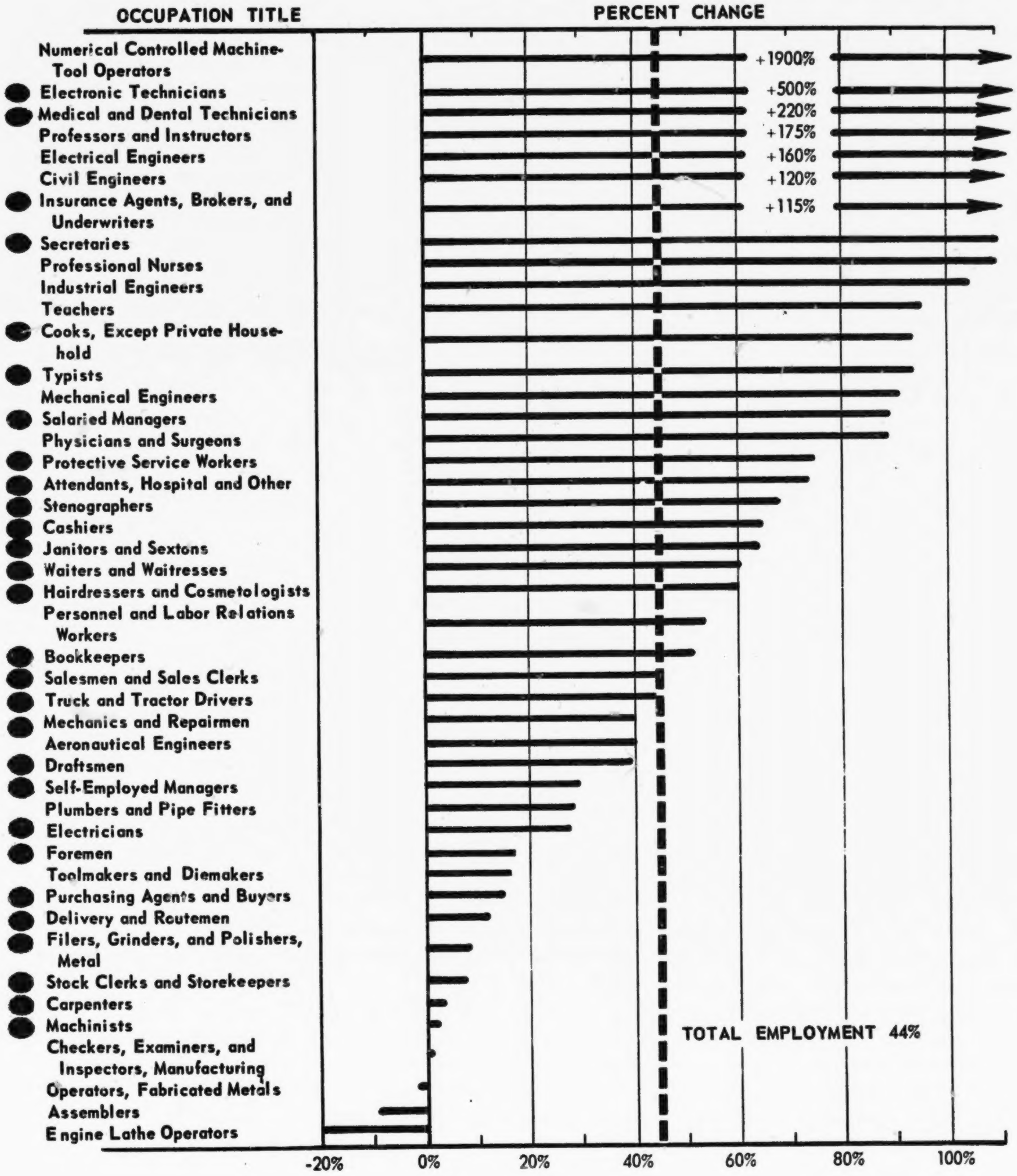
--- Clerical-Sales
--- Business-Service
--- Manufacturing
--- Skills and Trades

If we consider these from a para-professional or a level at which the high school or community college can successfully provide a program it becomes evident that a considerable affinity in preparation does exist within the kindred career occupations and skills. As an example we have taken kindred careers in Clerical-Sales and charted the typical instruction or courses which when combined would qualify a person for employment. The courses above the line could well be considered preparatory at the high school level while those below the line could be offered at the community college or vocational-technical, post-high school level. Whether the course will be offered by a specific school will depend on the number of students interested and whether it is more efficient to offer it in the high school or offer it at the community college and transport the student to the community college campus.

It can be noted that some of the occupations listed at the top and indicated as 1st, 2nd, or 3rd choice were selected by relatively few students. In these cases it is questionable whether these should be attempted locally. Examples

Chart 2

Who Is Going to Do What in 1980?



● Indicates Programs Which Should Be Offered In This Area

Chart 3

Kindred Careers in Clerical Sales

Typical Course Offerings

Job Titles	Secretary	Stenographer	Court Reporter	Clerk Typist	Bookkeeper	Receptionist	P.B.X.	Account and Clerk	Retail Clerk	Business Mgt.	Travel Agent	Library Assist.	Journalist	Adm. Sec.	Legal Sec.	Med. Sec.	Accountant	Office Mgr.	Motel Mgr.	Traffic Mgr.	Medical Asst.	Dental Asst.	Food Service Super.	Law Officer	Printer	Data Processing
Beginning Career In H.S.	44	8	1	4	5	4	4	2	8		3	4	14	1	3	3	4	3	2	0	9	3	1	16	1	17
Indicated Student Interest	130	22	5	19	23	33	21	11	27		17	26	47	3	11	20	13	12	11	2	29	26	2	60	2	38
Typing	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Adv. Typing	X	X	X										X	X	X			X								
Bookkeeping					X			X	X	X	X			X		X	X	X	X	X						
Shorthand	X	X	X											X	X.											
Office Equipment	X			X	X	X		X	X					X		X	X	X							X	X
Bus. Math	X				X			X	X	X	X			X		X	X	X	X	X			X			X
Bus. Eng.	X	X	X	X		X	X	X		X	X	X		X	X	X	X	X	X	X			X	X	X	X
Bus. Law			X							X	X			X			X	X	X	X			X	X	X	
Salesmanship									X	X	X								X							
Record Control	X				X			X				X		X	X	X		X			X					X
Filing	X		X	X	X	X	X	X			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Machine Transc.	X	X	X	X										X	X			X								
Office Etiquette	X	X	X	X	X	X	X	X				X		X	X	X	X	X	X	X	X	X	X	X		X
Bus. Etiquette									X	X	X		X	X				X	X				X	X	X	X
Adv. Shorthand	X	X													X											
Bus. Prac.	X									X				X			X	X					X			
Accounting					X			X									X									X
II					X			X									X									
Cost Account.																	X									
Tax																	X									
Key Punch																										X
Math of Finance										X							X									
Bus. Stat.																	X									
Mgt. Prin.										X	X			X				X	X				X			
Personnel Mgt.										X				X				X	X				X			
Investments																	X									
Insurance																	X		X							
Marketing										X																
Advertising										X																
Data Processing										X																X
Med. Vocab.																X					X					
Legal Vocab.			X												X											
Economics	X		X							X							X	X	X	X						
Purchasing																							X			
Intern			X				X			X	X		X	X	X		X	X	X		X	X	X	X	X	X
On Job Exper.	X	X		X	X	X		X	X	X	X	X	X			X	X	X	X					X	X	
Psychology	X					X	X			X	X			X	X			X	X				X	X		
Speech	X		X			X	X		X	X	X		X	X	X			X	X				X	X		
History											X															
Geography											X															
Etc.																										

would be journalist, P.B.X. operators, medical assistant, dental assistant, and data processing.

It can be noted from the previous Chart III that some of these are in predicted demand and others are limited. In planning a program offering all these, local and national predicted opportunities, should be considered.

It is recommended that the administration of the community college, in cooperation with the principals, develop a similar program chart for the other kindred careers and then determine which courses can most practically be provided at the high school and continued or finished out at the college.

It seems very feasible to provide a very wide offering of specific occupation titles by individualizing instruction. For example, the primary difference between a medical secretary, a dental secretary and a general business secretary will be one course in vocabulary. The same will be true in the mechanics and electronics and sales areas. If the principles can be taught it should be simple to either provide the few special courses or negotiate reciprocal arrangements with other institutions in Michigan to provide the finishing courses thereby expanding the number of career offerings to meet the needs of almost any student. In fact, it is practical and desirable to offer a very wide range of career specializations by

--- providing the basic and general instruction at the high school with specific work at the community college level resulting in a terminal program.

--- providing the preliminary and basic skills and instruction locally and arranging with another state institution to provide the specialized finishing work under reciprocity or contract.

--- providing the leadership and initiative to guide a student through other institution's programs resulting in a career preparation.

--- paying the tuition and fees, thereby assisting the student to complete a program which would be difficult and inefficient to provide locally.

--- contracting with qualified instructors from the area or outside the area to provide the necessary instruction in an individual or small group of students.

The rationale is simply that the purpose of a community college is to provide services to local citizens according to their needs, in the most practical manner. If too few desire a specific training at a given time to justify offering it locally then the college should explore other possibilities. If other state supported institutions do offer the needed instruction it is logical that the local institution negotiate a reciprocal agreement because a substantial amount of the financial support comes from the state level and it is not practical for state institutions to compete when the public financially supports all of them.

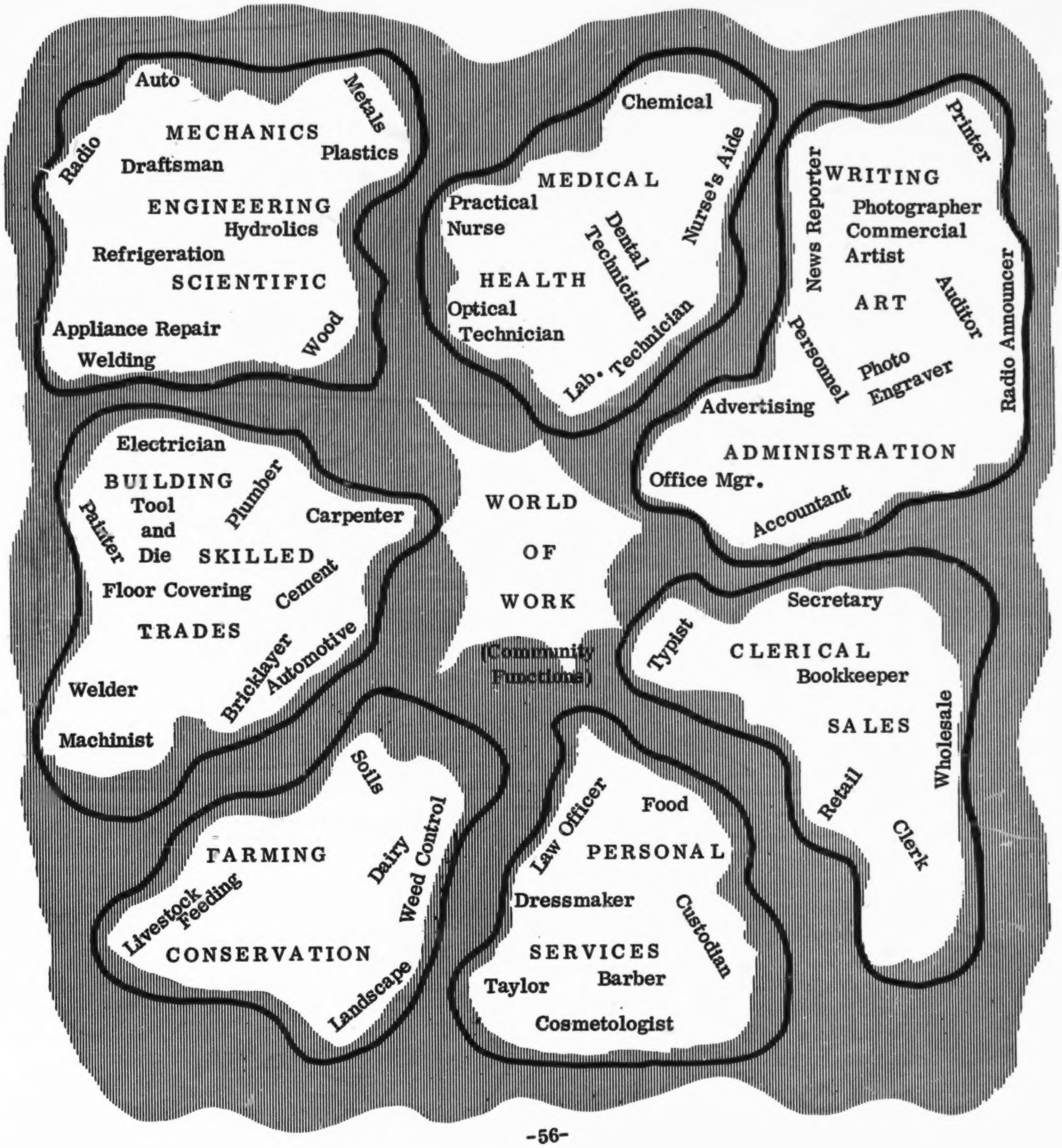
It is important to understand that it is not suggested that the total responsibility for career preparation be provided either locally or in the Kirtland Community College but it is suggested that the Kirtland College provide the leadership and coordination be bring either the needed educational services to the community or the citizen-student to the educational service elsewhere. The decision on which alternative to employ will probably depend on participant need and the economy of providing the educational service.

Need for Cooperation

Probably the major factor affecting success, from a practical administrative consideration, is the assurance of support and cooperation by the various educational agencies sharing in the total educational responsibility in the Kirtland Community College District.

Unless pre-vocational programs are initiated at the late elementary, junior high and

MODEL
FOR
KINDRED CAREER PROGRAMS


Auto
Metals
MECHANICS
Radio
Plastics
Draftsman
ENGINEERING
Hydrolics
Refrigeration
SCIENTIFIC
Appliance Repair
Wood
Welding
Chemical
MEDICAL
Nurse's Aide
Practical Nurse
Dental Technician
HEALTH
Optical Technician
Lab. Technician
Printer
News Reporter
WRITING
Photographer
Commercial Artist
Radio Announcer
Auditor
ART
Personnel
Photo Engraver
Advertising
ADMINISTRATION
Office Mgr.
Accountant
Electrician
BUILDING
Plumber
Tool and Die
Painter
Carpenter
SKILLED
Floor Covering
Cement
TRADES
Bricklayer
Automotive
Welder
Machinist
WORLD OF WORK
(Community Functions)
Secretary
Typist
CLERICAL
Bookkeeper
SALES
Wholesale
Retail
Clerk
Soils
FARMING
Dairy
Weed Control
Livestock Feeding
CONSERVATION
Landscape
Law Officer
Food
PERSONAL
Dressmaker
Custodian
SERVICES
Taylor
Barber
Cosmetologist

senior high school levels students will not be properly orientated to the vocational-technical programs which might be offered at the community college level. By the same token there will not be a high school vocational program unless there is planning and cooperation between the high school principals and the community college administrators. Without very close cooperation involving the release of high school students and provision for their transportation to the community college center there will not be students to justify an area vocational-technical offering.

Organization

To assure that the Kirtland Board of Education, the local school districts, and the Intermediate District cooperate and coordinate their educational resources it is not only important but vital that policies be established to define procedures for educational planning.

The following Chart 4 suggests a desirable organization for the Kirtland Community College, the Local K-12 Districts, and the Intermediate District.

It is significant that the community college be very responsive and sensitive to the educational needs of the area. The key sources of information are the school superintendent, the high school principal and the interested business and industry leaders.

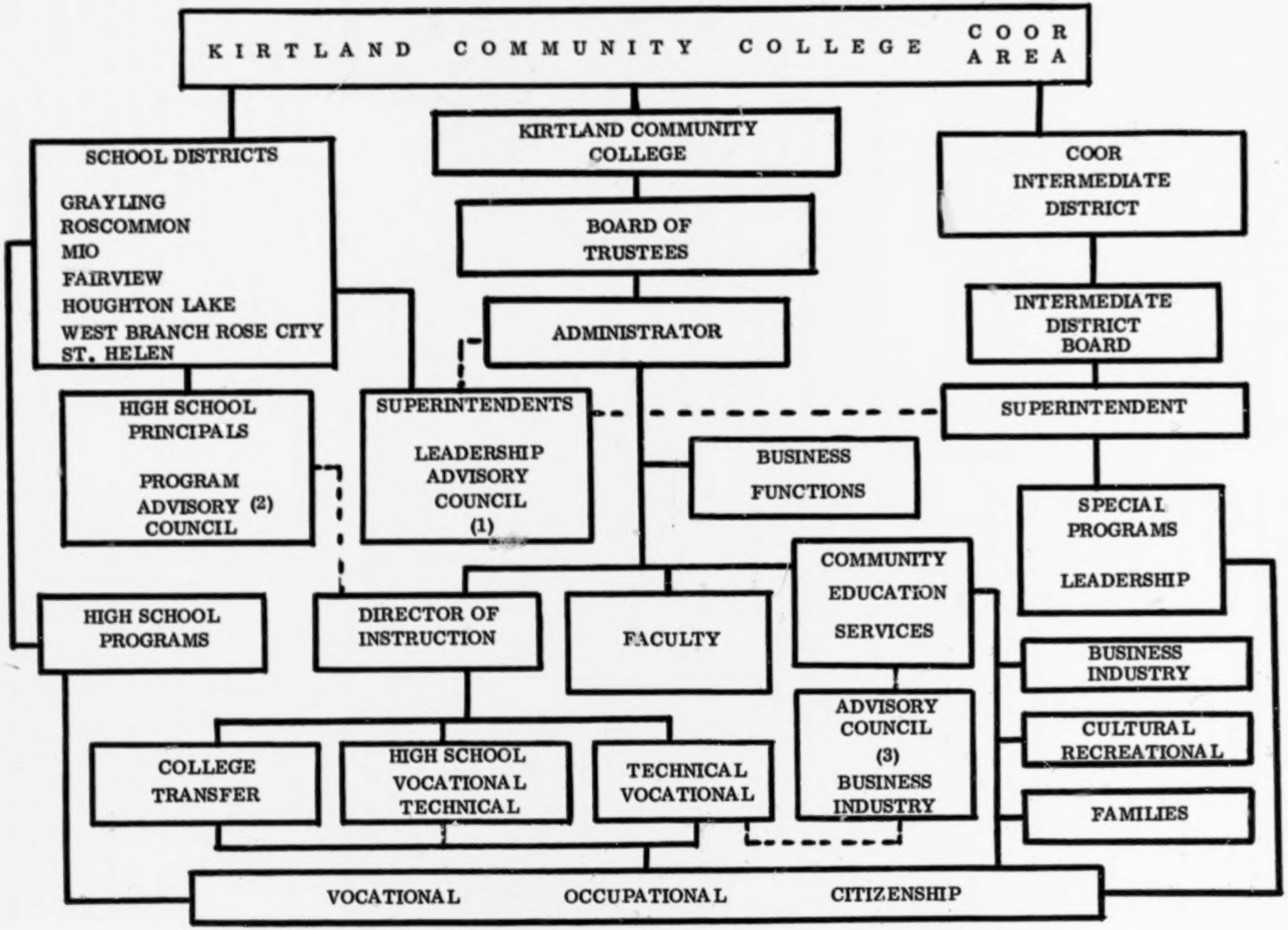
The administration, if they are to meet the educational needs of the area, must assure cooperation with these three groups. On this premise it is suggested that (1) the superintendents, including intermediate superintendents, serve as a standing advisory council to the administration of the college, (2) the principals serve as an advisory council to the Dean of Instruction of the college and (3) the interested citizens serve as an advisory council to the community service function and the Vocational-Technical Director of the college. This will help to assure a direct and sensitive line of communication to the administrators responsible for programs serving the needs of the citizens of the Kirtland District. Although we must recognize that the final responsibility for the program rests with the leadership of the district and the policies of the Board of Trustees of the college, this organization suggests an optimum assurance that the people of the area can receive their expectations in educational program and service. This is the extent of service that can be offered at this stage of planning. The final decision rests with the voters of the district as they approve funds and elect members to the board of trustees.

Financial Needs

The report of the Community College Feasibility Study and the apparent attitudes of school officials and citizens has indicated the acceptance of the community college district as the organizational alternative for planning and financing improved occupational training for the area. The minimum population requirement of 800 or more late teen-agers for establishing a community college is present. The enrollment potential of 400 students should be reached within a few years of the opening of the college doors. Business and industry and the present youth have indicated training needs and the desire for this service locally. The financial resources necessary to implement and operate the programs will be derived primarily from local and state government and tuition. Grants from the Federal government, business and industry, and private sources may reduce costs and/or provide an enriched and broader program. An operational expenditure of $1000 per student should be planned for adequate program development. State Aid in 1967-68 is $350 for a fully equated student enrolled in a vocational-technical program. With tuition in the $300 per year range, the local property tax of one mill and state aid of $350 should provide the required operating revenue.

Bonding for facilities appears to be necessary in order to receive matching grants from the State. However, with the State Equalized Valuation that is available to the district the millage necessary to amortize the debt will be minimal. The master plan and educational specifications will show the kind of construction desired and the space and equipment requirements. When these decisions have been made, translation into dollars and cents is possible.

Chart 4
Organization Plan


KIRTLAND COMMUNITY COLLEGE COOR AREA
SCHOOL DISTRICTS
GRAYLING
ROSCOMMON
MIO
FAIRVIEW
HOUGHTON LAKE
WEST BRANCH ROSE CITY
ST. HELEN
KIRTLAND COMMUNITY COLLEGE
BOARD OF TRUSTEES
ADMINISTRATOR
COOR INTERMEDIATE DISTRICT
INTERMEDIATE DISTRICT BOARD
SUPERINTENDENT
HIGH SCHOOL PRINCIPALS
PROGRAM ADVISORY (2) COUNCIL
SUPERINTENDENTS
LEADERSHIP ADVISORY COUNCIL (1)
BUSINESS FUNCTIONS
SPECIAL PROGRAMS
LEADERSHIP
HIGH SCHOOL PROGRAMS
DIRECTOR OF INSTRUCTION
FACULTY
COMMUNITY EDUCATION SERVICES
BUSINESS INDUSTRY
CULTURAL RECREATIONAL
FAMILIES
ADVISORY COUNCIL (3) BUSINESS INDUSTRY
COLLEGE TRANSFER
HIGH SCHOOL VOCATIONAL TECHNICAL
TECHNICAL VOCATIONAL
VOCATIONAL
OCCUPATIONAL
CITIZENSHIP

The basic natural resource of the United States is its people. It follows inescapably that the first goal to be pursued -- at all levels, federal, state, local, and private -- should be the development of each individual to his fullest potential. No limits are known to the degree to which, by the expenditure of adequate time, energy, skill, and money, the human mind can be developed at various levels of ability.[1]

RECOMMENDATIONS

HOW ?

> The toughest question facing us now, in my judgment, is whether we have the courage and flexibility and imagination to innovate as the times require. Let us not deceive ourselves. The old ways of doing things are not good enough. But giving up the old ways will be painful. Institutions fear change. In the face of change we all grow defensive, we all move toward protecting our particular vested interests. But the overriding vested interest of all of us is in the vitality of American education. That is the precious thing that we hold in trust.[2]

With the spirit of Mr. Wriston's belief in the potential of the individual and facing the practical issues of our times as expressed by U.S. Commissioner of Education John W. Gardner we conclude this study with these specific recommendations which are either supported by the facts or the professional opinions of American education leaders.

---

[1] Wriston, Henry M., "The Individual," Goals for Americans, The Report of the President's Commission on National Goals, Chapter I, Prentice-Hall, Inc., 1960, p. 53.

[2] Gardner, John W., White House Conference on Education, A Milestone for Educational Progress, Committee on Labor and Public Welfare United States Senate, U.S. Government Printing Office, W.D.C., August, 1965, p. 175.

1. PROVIDE AN AREA VOCATIONAL-TECHNICAL PROGRAM IN THE KIRTLAND COMMUNITY COLLEGE DISTRICT.	Plan program for and provide facilities to accommodate an area vocational-technical school as the primary purpose of the Kirtland Community College. The need is well recognized and public support is evident. By cooperative utilization of area resources, recruitment of existing school faculties and imaginative leadership it is not only feasible but highly practical to have a program broad enough to meet most of the career needs of the citizens of the area. In the planning of an area Technical-Vocational facility consideration must be given to a plan which will accommodate the many kindred career opportunities. This will require innovative planning.
2. PROVIDE VOCATIONAL-TECHNICAL EDUCATION PROGRAMS COOPERATIVELY BETWEEN THE K-12 DISTRICTS AND THE COMMUNITY COLLEGE.	Establish a council consisting of the high school principals and the Director of Instruction to plan a cooperative program of vocational-technical education for the area. The high school should provide the pre-preparation and basic skills and the college the complementary and supplementary work for (1) introduction to career employment, and (2) opportunity for career advancement. The college should also supplement the high schools by offering for college credit those highly specialized and advanced courses not economical or practical to be offered in the individual high schools.
3. EMPHASIZE PROGRAMS TO DEVELOP A FAVORABLE WORK ATTITUDE.	With the leadership of the Intermediate District initiate a curriculum improvement program to strengthen the K-12 schools' efforts in developing a sound respect for the "work ethic." This should be started with special workshops for the teachers. See Appendix A for suggestions or consult the State Department of Vocational Education for direction.
4. ORGANIZE A COMMUNITY EDUCATION PROGRAM.	Utilize the support and assistance of the citizens who have offered to serve on the advisory council to plan service, cultural, and recreational programs. The Community College should supplement and complement the community education efforts in the K-12 districts. The Community College should provide the community education leadership to the local communities.

5. ACQUIRE ADEQUATE FINANCING FOR TECHNICAL-VOCATIONAL EDUCATION.

If comprehensive occupational training is to be provided for the citizens of Michigan and this area in particular, it is clear that the financing will not be adequately provided at the local level. To encourage community colleges to provide the more expensive occupational programs the state must participate on a higher rate than at present or is required for the non-occupation or academic programs. It is suggested that the state's rate of participation in special education at the high school level or graduate school education at the collegiate level would be a practical rate.

Unless the state takes the initiative to participate at a much higher proportionate rate than at present it is inevitable that the Kirtland College like all the others will concentrate on the less expensive academic and lecture type offerings, with the result that educational opportunities will be as limited as at present. It seems very unrealistic to believe that adequate career development programs will be supported locally.

6. ORGANIZE TO DEVELOP AND UTILIZE EDUCATIONAL LEADERSHIP.

As suggested in the organizational chart on page 58 initiate by Kirtland College Board of Trustee Policy (1) a Leadership Advisory Council to facilitate communications between the Administrators of the K-12 districts and the Community College; (2) a Program Advisory Council consisting of the six High School Principals and the College Director of Instruction to plan and coordinate high school and college curriculum; and (3) a Citizens Advisory Council to communicate plans and assist with Programs for Business-Industry, Cultural and Recreation, and Family Life. A list of the citizens who have volunteered to serve on such an advisory council is included in Appendix D. This list should be expanded to include others as plans develop and new programs are desired.

7. PLAN FOR CHANGES.

The Feasibility Study and this study should be considered as a basis for initial planning. The data and information should be up-dated regularly in order to give direction to the future planning of both the K-12 schools and the college.

8. COORDINATE RESOURCES AND SERVICES FROM OUTSIDE THE AREA.

One of the potentially most valuable services that can be provided the schools, business, industry and citizens of the area is to provide the facilities and means for bringing to the community the resources of the many agencies and organizations of the state. The accommodation of this type of service should be carefully planned for in the design of the college facilities.

BIBLIOGRAPHY

BIBLIOGRAPHY

A Study of Curriculum Development in the High School Cooperative Program, U.S. Department of Health, Education and Welfare, #OE-82000 Vocational Division Bulletin No. 281, Distributive Education Series No. 28.

Area Vocational Education Programs, Committee on Research and Publications, American Vocational Association, Washington, D.C., 1959.

Basic Planning Guide for Vocational and Technical Education Facilities, U.S. Department of Health, Education and Welfare, #OE-80040, Special Publication No. 11, 1965.

Buildings, Equipment and Facilities for Vocational Agriculture Education, U.S. Department of Health Education and Welfare, #OE-81003, Vocational Division Bulletin No. 284, Agricultural Series No. 76, 1960.

Colm, Gerhard, "Prospective Economic Developments," *Implications for Prospective Changes in Society*, Designing Education for the Future (An Eight-State Project), Denver, Colo., 1967.

DeVore, Paul W., *Technology An Intellectual Discipline*, American Industrial Arts Association, Washington, D.C., Bulletin No. 5, 1964.

Evans, R.N., "Industry and the Content of Industrial Education," *School Shop*, April, 1962.

Final Report of the Feasibility of A Community College for the Area Intermediate School Districts of Crawford-Ogemaw-Oscoda-Roscommon, Office of Community College Cooperation, Michigan State University, April, 1965.

Gardner, John W., *White House Conference on Education, A Milestone for Educational Progress*, Committee on Labor and Public Welfare, United States Senate, U.S. Government Printing Office, Washington, D.C., August, 1965.

Goodlad, John, "The Educational Program to 1980 and Beyond," *Implications for Prospective Changes in Society*, Designing Education for the Future (An Eight-State Project), Denver, Colo., 1967.

Haws, Robert W., and Schaefer, Carl J., *Manufacturing in the School Shop*, American Technical Society, Chicago, 1960.

Industrial Arts and Vocational Education, March, 1967. This issue is devoted to planning shop and laboratory facilities as is each annual March issue.

Industrial Arts Education - Purposes-Program-Facilities-Instruction, American Council of Industrial Arts Supervisors of the American Industrial Arts Association, McKnight and McKnight Publishing Co., Bloomington, Illinois, 1963.

Ingram, J. Fred, "What Makes Education Vocational?" American School Board Journal, Nov., 1956.

Institute for Community Development and Services, Continuing Education Service, Michigan State University, Career Opportunity Guide I, 1966.

Johnson, B. Lamar, Starting A Community Junior College, Washington, D.C., American Association of Junior Colleges, 1964.

Keane, George R., Teaching Industry Through Production, American Industrial Arts Association, 1959.

McClusky, Howard, "The Educative Community," The Community School and Its Administration, Flint Board of Education Bldg., Flint, Michigan, Vol. V, No. 9, May, 1967.

Medsher, Leland, The Junior College: Progress and Prospect, New York, McGraw-Hill Book Co., Inc., 1960.

Michigan Department of Education, A Vertically Integrated Occupational Curriculum for Schools in Michigan, Ditto, Fifth Draft, 6-14-67.

Morphet, Edgar L. and Ryan, Charles O., Prospective Changes in Society by 1980, Denver, Designing Education for the Future: An Eight-State Project, 1966.

New Dimensions in Industrial Arts Curriculum Development, Industrial Arts June Curriculum Project, Ohio State University and University of Illinois, Office of Education Contract OE-5-85-006, Ohio State University, Mimeographed, 1966.

Nicholson, David H., "Why Adults Attend School on Analysis of Motivating Factors," The University of Missouri Bulletin, Vol. 56, No. 30, Education Series No. 57, September 1, 1955.

Reynolds, James W., The Junior College, New York, The Center for Applied Research in Education, Inc., 1965.

Simpson, Hoke S., editor, The Changing American Population, New York, Institute of Life Insurnace, 1962.

Stadt, Ronald and Jensen, Thomas, "Functional Advisory Committees for Vocational-Technical Education," Journal of Industrial Teacher Education, Vol. 4, No. 2, Dec., 1966.

State Board of Education, "Public High School Dropouts in Michigan, 1964-65," Research Monograph No. 7-Revised, March, 1967.

The Operation of a Local Program of Trade and Industrial Education, U.S. Department of Health, Education and Welfare, Vocational Division Bulletin No. 250, Trade and Industrial Series No. 62.

The School Administrator and Vocational Education, Committee on Research and Publications, American Vocational Association, Washington, D.C., 1959.

Tyler, Ralph W., "Purposes, Scope and Organization of Education," *Implications for Prospective Changes in Society*, Designing Education for the Future (An Eight-State Project), Denver, Colo., 1967.

U.S. Bureau of the Census, "Our Growing Population," Graphic Pamphlets, G.P. 60-1, U.S. Government Printing Office, Washington, D.C., 1961.

Venn, Grant, *Man, Education and Work-Post Secondary Vocational and Technical Education*, American Council on Education, Washington, D.C., 1965.

Watson, Goodwin, editor, *No Room at the Bottom -- Automation and the Reluctant Learner*, National Education Association, Washington, D.C., 1962.

Weaver, William J., "Applying Industry to an Advanced Wood Program," *Industrial* Arts and Vocational Education, Vol. 50, Jan., 1961.

Wright, Lawrence, editor, Research Committee Industrial Arts Division, *Industrial Innovations and Industrial Arts*, American Vocational Association, 1963.

Wriston, Henry M., "The Individual," *Goals for Americans*, The Report of the President's Commission on National Goals, Prentice-Hall, Inc., 1960.

APPENDIX

Appendix A

A Vertically Integrated Occupational Curriculum for Schools in Michigan

Educators in Michigan are charged with the responsibility for providing all citizens who participate in our democratic society with an opportunity to become and remain occupationally competent.

To accomplish this task adequately, occupational education should be an integral part of the total education process. Each level of the educational system has a unique role to play in assisting every student to make wise career choices and to achieve maximum occupational competency.

A vertically integrated occupational curriculum that extends from the elementary through the post-secondary education levels is needed. This integrated curriculum should develop positive attitudes about work, create an awareness of the vast occupational opportunities and provide knowledge and skill sufficient to meet the demands of a constantly changing society.

The Dictionary of Occupational Titles lists 21,741 different occupations. It is obvious that all 21,741 could not receive individual attention at any level of the educational program. Examples should be selected that are representative of the general occupational areas.

It is important that guidance and counseling be available at all levels to help each individual assess accurately his own career interests and potential.

Chart 1 presents an occupational education curriculum model which emphasizes occupational preparation as an integral part of each person's total educational experience. It suggests specific roles for each oevel of the educational system with articulation between the levels.

Persons cannot and should not be expected to make career choices at the same time. A major strength of the model is its flexibility and adaptability to the individual needs of students.

Specific Roles of Each Educational Level in Occupational Education

The Elementary School

The Vocational-Technical Curriculum Committee suggests that the role of the elementary school should be to provide each student with opportunities to acquire positive attitudes about work, to understand the merits of continued employment, and to create an awareness of the world of work. Students learn that all citizens in a democarcy are producers of services, products, and ideas.

Occupationally oriented learning at the elementary level should be integrated as part of the total instructional program. Elementary reading, social studies, and science are course examples which can be easily enriched by including occupational concepts. Educational television, field trips, and movies are some of the media which have great potential for providing experiences or an atmosphere which would help each youngster better understand the "world of work."

It is important at this level that occupational experiences be of unrestricted scope. These experiences may be more general than that provided for the older, more mature junior and senior high school student. They may, however, be highly specific but they should be related to the broad scope of the world of work. Emphasis should be placed on the basic value or worth of the occupations, the employees,

CHART I

A MODEL FOR AN INTEGRATED OCCUPATIONAL EDUCATION PROGRAM

Level	Elementary School	Junior High and Early Senior H.S.	Late Senior High School	Post-Secondary and Adult
Objective	To develop an awareness of the occupational world.	To stimulate an occupational interest and provide exploratory & pre-vocational experiences.	To provide training for a "cluster" of occupations.[1]	To provide occupational training, upgrading and/or retraining.
Depth and Scope	General understanding with unrestricted exposure to all fields of work.	Acquaintance with many specific occupations. Opportunities for practical experiences.	Job-entry skills in One occupational cluster.	In-depth training for specific occupations or an occupational cluster.
Number of Courses or Curricula	Integrated as part of total program.	Continue integrated program to provide separate courses which include experiences related to all fields of work.	12-15 clusters.	20-50 Many offerings will be dependent upon local demand.
Location of Instructional Facilities	Every elementary school.	Within every local junior and senior high school.	Local high schools and/or area centers.	Community colleges and state colleges and universities.

---

[1] Job Cluster Curriculum, Lane County Intermediate District Board of Education; Eugene, Oregon; Dale Parnell, Project Director; 1965.

and the employers in our society. Some occupational experiences may be acquired through a series of projects similar to Junior Achievement beginning at this level and progressing in complexity as students advance. Academic subject matter could be integrated with these projects.

The Junior and Early Senior High School

The role of the junior high and early senior high school should be to stimulate each student to acquire occupational interests and to provide opportunities for each one to begin assessing his own abilities and interests.

To accomplish this role, the process of providing information about the world of work started at the elementary level will be continued and expanded. In addition, students should be exposed to exploratory occupational experiences. These experiences should acquaint students with the basic characteristics and requirements of various occupations, and to the extent possible, provide opportunities for gaining some practical experiences within a structured framework. All students should be given the opportunity to observe and talk with people at work in as many occupational categories as possible.

Some of these educational experiences can be effectively integrated with the academic courses offered at this level. Others will of necessity require separate courses and facilities to be effective.

It will be difficult for students at this level to make a valid personal assessment of abilities and interests unless each one is aware of the occupational opportunities available and understands the basic requirements for occupational success.

Innovative demonstration projects such as those being attempted at Niles[2] and Orchard View Middle School[3] are examples of methods that can be used to develop the concept of vertically integrated occupational education.

At this level the occupational world could be divided into broad categories for the purpose of providing exploratory experiences. The Detroit Public School System[4] has experimentally developed four categories. They are:

1. Materials and Processes
2. Energy and Propulsion
3. Visual Communication
4. Personal Service

"Materials and Processes" includes occupations that deal primarily with the procurement, utilization, or processing of various materials, such as metal, wood, ceramics, soil, plastics, Fiberglass, etc.

"Energy and Propulsion" includes those occupations which involve the use of energy sources, such as electrical, nuclear, solar, hydro, and chemical. It also involves the use of these energy sources for propulsion on land, sea and in the air.

"Visual Communications" involves occupations associated with art, drafting, printing, writing, most types of office work, etc.

"Personal Services" involve any occupation that provides a direct service to the human being. Included would be health services, commercial foods, cosmetology, performing arts, recreation services, protection services, etc.

The model suggests that most students would not be asked to make career selections until they reach late senior high school. Even at this time, it is not necessary for all students to make definitive occupational selections. The student's right to change his objectives at different stages of development and maturation should be consciously preserved.

---

[2] "Occupational Education for All," research project in progress 1966-67; Niles Public Schools, Niles, Michigan.

[3] "An Experimental Curriculum Program," 1966-67, Orchard View Middle School; Muskegon, Michigan.

[4] "The Detroit or Galaxy Plan for Career Preparation," Division for Improvement of Instruction, Detroit Public Schools, Detroit, Michigan, 1966, (mimeographed).

At the junior high school level, it is particularly important to identify students who may be unable to progress normally through the high school curriculum. Vocational programs should be developed for these people with special needs so that they too can become economically independent and make a maximum contribution to society.

The Late Senior High School

The role of the late senior high school (usually grades 11 and 12) is to provide specific training for a "cluster"[5] of closely related occupations.

A report issued by the Rockefeller Brothers Fund pointed out the advantages an individual would have if his vocational preparation is based on the cluster concept:

> In this day of technologies that become antiquated overnight, it is hazardous to predict a favorable future for any narrow occupational category. There will be economic advantage to the individual in acquiring the kind of fundamental training that will enable him to move back and forth over several occupational categories. Individuals so trained will find a market for their talents under most circumstances. Individuals more narrowly trained will be at the mercy of circumstances.[6]

The cluster courses in the late senior high school should be designed so that the instruction given is basic to most of the occupations within the cluster.

The suggested eleven to fifteen cluster of occupations that will be needed at this level should be determined by critically analyzing the commonalities among various occupations. Several research efforts are now underway to arrive at logical occupational clusters.

For illustrative purposes, the following groups of occupations would appear to have certain commonalities and might make logical groupings. Such groupings should, of course, be verified through systematic job analysis.

1. Office occupations
2. Graphic communication occupations
3. Production agriculture and related occupations
4. Metal processing occupations
5. Construction occupations
6. Transportation service and repair occupations
7. Hospitality occupations
8. Health occupations
9. Distributive occupations
10. Electricity-electronics occupations
11. Family and community service occupations

Any attempt in arriving at a complete list of clusters presents numerous problems. In any list, there probably will be some occupations which cannot be included for various reasons.

The late senior high school occupational preparation program should be adaptable to the needs of several types of students. Each of the clusters should have built-in flexibility sufficient to provide somewhat different instruction for these several groups.

Some students will seek employment immediately upon leaving high school and should develop sufficient salable skills to enable them to compete successfully for entry-type jobs. This will require considerable shop laboratory instruction in one or more of the cluster areas.

---

[5] Job Cluster Curriculum, Lane County Intermediate Board of Education; Eugene, Oregon, Dale Pernall, Project Director, 1965.

[6] Rockefeller Brother Fund, The Pursuit of Excellence: Education and the Future of America, Panel Report V of the Special Studies Project of the Rockefeller Brothers Fund, Inc.; New York; Doubleday & Co., 1958, page 10.

Students who will continue their vocational education in a post-secondary institution need to acquire the basic knowledge and skills for their chosen occupational area. The cluster instruction should provide the base upon which the post-secondary curriculum can be built.

Students who expect to acquire a baccalaureate degree can also use the clusters for securing a broader background. Both of the latter two groups may use the clusters for additional exploratory purposes. In most instances, students who aspire to professional occupations requiring a baccalaureate or higher degree would not be expected to spend as much time in the cluster program as the other groups would. This instruction would involve more theory and demonstration work in contrast to the manipulative activities provided for students in the first two categories.

The Post-Secondary and Adult Program

The role of post-secondary and adult occupational education is to provide a wide variety of programs designed to give depth training for a particular occupation or for several closely related occupations. In addition, opportunities must be provided for persons who have entered the labor force and need job up-grading or retraining. Provisions must also be made for training our-of-school youth needing occupational competencies.

These post-secondary and continuing education programs should provide instructional programs which are needed for the particular labor market served by each institution. Some programs will be designed to serve a national labor market and still others for local labor market needs.

The process follows the recommendations suggested by N.H. Frank,

> ...From the intermediate grades as a base, the flow of students and experience into the senior high school can then lead smoothly into a few, broad, closely related avenues of study with manifold possibilities for cross-over...Out of such closely coupled educational operations can come new opportunities leading to the traditional four-year college or other post-high school formal education, such as the community college or technical institute, or to continuing education on the job.[7]

The Educational Research Council of Greater Cleveland has undertaken a significant project designed to restructure the school durriculum at all levels in order to develop a totally integrated curriculum for occupational education. This project involves defining the role of each educational level for developing occupational competency.[8]

---

[7] N.N. Frank, Summary Report of the Summer Study of Occupational, Vocational and Technical Education, Massachusetts Institute of Technology, Cambridge, Mass., 1965.

[8] Educational Research Council of Greater Cleveland, Sequential Programs in Occupational Education for a Restructured Curriculum, Educational Research Council of Greater Cleveland, Cleveland, Ohio, 1966.

Appendix B

Occupation Guide

Technical Occupations in Michigan

ENGINEERING AND SCIENTIFIC

OCCUPATION	NATURE OF WORK	Length of Training (Months)
(1) Architectural Draftsman	Prepares complete and accurate final sketches, working plans and detailed drawings of architectural and structural features of any class building.	18
(2) Technical Illustrator	Lays out and draws illustrations for reproduction in references books and brochures dealing with such things as assembly, tools, and equipment.	12-24
(3) Mechanical Draftsman	Specializes in drafting detailed working drawings of machinery and mechanical devices indicating dimensions and tolerances, fasteners and joining requirements.	18-24
(4) Engineering and Mechanical Technician	Applies theory and principles of mechanical engineering to develop and test machinery and equipment under direction of engineering staff and physical scientists.	24
(5) Highway Engineer Technician	Provides technical assistance to highway engineers.	18
(6) Optical Technician	Designs, tests and assembles mechanical portion of precision optical instruments such as aerial cameras, spectrophotometers, refractometers.	18
(7) Metallurgist Assistant	Examines photographs, tests metal samples to determine their physical properties under the direction of a metallurgist.	24
(8) X-Ray Technician (Radiographer)	Controls radiography equipment to take radiographs of metal castings, weldments, pipes, to detect flaws, cracks, porosity and presence of foreign objects.	24
(9) Chemical Technician	Under the direction of a chemist, conducts chemical and physical laboratory tests and analyses of materials for purposes such as development of new products and maintenance of safety standards.	18-24
(10) Industrial Engineering Technician	Studies and records time, motion, methods, and speed involved in performance of maintenance, production and other worker operations to establish standard production rates and improve efficiency.	24
(11) Mechanical Technician	Fabricates, modifies or repairs mechanical instruments or assemblies of electrical or electronic instruments.	11-25
(12) Quality Control Technician	Tests and inspects products at various stages of production and distribution and compiles statistical evaluation reports as to quality and reliability of products.	20-25
(13) Instrumentation Technician	Devise, sets up and operates electronic instrumentation and related electromechanical or electrical hydraulic apparatus.	22
(14) Electronic Engineering Technician	Discusses layout and assembly problems with electronic engineer and draws sketches to clarify design detail and functional criteria of electronic units.	24
(15) Surveyor	Surveys earth's surface and oversees engineering survey party engaged in determining exact location and measurement of points and elevations for data used for construction, mapmaking and mining operations.	18
(16) Library Assistant	Compiles records, sorts, and shelves books, issues and receives library materials, records identifying data and date-due cards, issues books, inspects books, compiles over-due lists and issues notices.	18

MEDICAL AND HEALTH

(1) Histological Technician	Prepares tissue samples, cuts, stains and mounts specimens of human or animal tissues for study and analysis.	12
(2) Medical Technologist	Performs chemical, microscopic, and bacteriologic tests to provide data for use in treatment and diagnosis of disease.	12*
(3) X-Ray Technologist	Takes and develops x-ray photographs, assists in x-ray treatments to patients for diagnostic and therapeutic purposes.	25
(4) Medical Lab Assistant	Performs routine tests for use in treatment and diagnosis of diseases.	12
(5) Medical and Dental Assistant	Performs duties under direction of physician or dentist in examination and treatment of patients.	6-24

MEDICAL AND HEALTH (cont'd)

(6) Physical Therapist	Prepares and treats disabled patients with exercise, massage, heat, water, light, and electricity, as prescribed by a physician to develop or restore functions.	24
(7) Sanitarian	Plans, develops and executes environmental health programs. Investigates public and private establishments such as restaurants, hotels, hospitals, schools, places of public gathering to determine compliance or violation of public sanitation laws and regulations.	18

*Three years college prerequisite.

WRITING, ART, ADMINISTRATION

OCCUPATION	NATURE OF WORK	Length of Training (Months)
(1) Journalist	Engages in editing or writing subject matter for newspapers, magazines, or other periodicals.	18
(2) Tool and Die Designer	Designs metal-working dies, cutting tools, jigs, fixtures, gages and machinist's hand tools for production in metal-working machines.	12-27
(3) Body Designer	Designs and draws automobile body components, full-scale, using standard and specialized drafting instruments.	5
(4) Interior Decorator and Designer	Plans and designs artistic interiors for homes, hotels, ships, commercial and institutional structures, and other establishments.	18
(5) Furniture Designer	Designs and originates scale drawings and specifications of furniture lines or individual pieces for manufacture.	27
(6) Commercial Artist	Draws and paints illustrations or precise lettering to be reproduced for advertisements, books, magazines, posters, billboards, and catalogs.	18-24
(7) Administrative Secretary	Keeps official corporation records and executes administrative policies determined by or in conjunction with other officials.	15-22
(8) Legal Secretary	Prepares legal papers and correspondence of legal nature, such as, summonses, complaints, motions, and subpoenas.	18-22
(9) Medical Secretary	Prepares medical charts and reports for doctor or hospital personnel.	12-24
(10) Accountant	Applies principals of accounting to install and maintain operation of general accounting systems.	9-30
(11) Office Manager	Supervises and coordinates activities of personnel in centralizes clerical functions of organizations.	22
(12) Motel Manager	Manages and maintains temporary lodging facilities; shows rooms, rents, registers guests, collects rent and resolves occupant complaints.	3
(13) Traffic and Transportation Manager	Directs traffic activities, formulates plans and procedures for transporting raw materials to production areas and finished products to customer warehouses or storage locations, analyzes transportation rates, routes, and time tables.	18
(14) Cost Estimator	Prepares cost and work-completion estimates for contract bids.	12

*Apprenticeship also available.

CLERICAL AND SALES

OCCUPATION	NATURE OF WORK	Length of Training (Months)
(1) Secretary	Schedules appointments, gives information to callers, takes dictation, and otherwise relieves officials of clerical work and minor administrative and business detail.	8-24
(2) Stenographer	Takes dictation, in shorthand, of correspondence, reports, and other matter, and transcribes dictated material, using typewriter.	4-24
(3) Court Reporter	Records examination, testimony, judicial opinions, judge's charge to jury, judgment and sentence of court, or other proceedings in court of law by manual or machine shorthand.	24
(4) Clerk Typist	Performs general clerical work requiring use of typewriter in majority of duties.	2-24

CLERICAL AND SALES (cont'd)

(5) Bookkeeper	Keeps records of financial transactions of establishments.	9-24
(6) Receptionist	Receives clients or customers coming into establishment, ascertains their wants, and directs them accordingly.	5-30
(7) Switchboard Operator	Operates cord or cordless switchboard to relay incoming, outgoing, and inter-office telephone calls.	2
(8) Cashier	Receives funds from customers and employees, disburses funds and records monetary transactions incidental to conduct of business.	1
(9) Account Clerk	Records complete set of records of financial transactions of establishment, using bookkeeping machines.	12-18
(10) Key Punch Operator	Operates alphabetic and numeric key-punch machine, similar in operation to electric typewriter, to translate data from source material onto punch-cards for data processing machines.	½-2
(11) Comptometer Operator	Computes and records statistical, accounting, and other numerical data, using machine that automatically performs addition, subtraction, multiplication, division and extraction of roots.	3
(12) Computer Programer	Converts symbolic statement of business, scientific and other technical problems to detailed logical flow charts for coding into computer language for solution.	9-22
(13) Salesman	Sells mechandise to business or industrial establishments, or to individuals, utilizing detailed knowledge of specific characteristics of merchandise, at sales office, store, showrooms, or customers' homes or place of business.	18
(14) Travel Agent	Provides travel information and arranges accommodations for tourists.	3
(15) Fashion Model	Models garments, such as dresses, coats, underclothing, swimwear, and suits for garment designers, sales personnel, and customers.	3-6

PERSONAL SERVICES

(1) Food Service Supervisor	Trains and supervises employees engaged in serving food and in maintaining cleanliness of food service areas and equipment in hospitals, nursing homes, schools or similar institutions.	18
(2) Barber	Cuts, trims, and tapers hair, using clippers, comb, and scissors.	9
(3) Hair Stylist**	Specializes in dressing hair according to latest style, period or character portrayal, following instructions of patron.	9
(4) Cosmetologist**	Provides beauty services for customer; suggests and develops coiffure according to physical features of patron and current styles or according to instructions of the patron.	7½
(5) Manicurist**	Cleans, shapes, and polishes fingernails and toenails.	2
(6) Electrologist**	Removes hair or blemishes from skin of patron by electrolysis.	2
(7) Practical Nurse**	Cares for patients and children in private homes, hospitals, sanitariums and similar institutions, bathes, dresses, combs hair and otherwise attends to patients comfort and personal appearance.	12
(8) Cake Decorator	Decorates cakes and pasteries with designs using icing bag or handmade paper cone.	½
(9) Dressmaker	Makes women's garments, such as dresses and coats; according to customers specifications and measurements.	3-24
(10) Law Officer (Patrolman)	Patrols assigned beat on foot, on horseback, motorcycle or patrol car to control traffic, prevent crime or disturbance of peace and arrest violators.	2-24

*Apprenticeship also available.

**License from State of Michigan required.

FARMING AND HORTICULTURE

OCCUPATION	NATURE OF WORK	Length of Training (Months)
(1) Soil Technician	Tests soil and makes fertilizer recommendations for crop production. Works in soil laboratories or as fertilizer plant operator and salesman and or soil conservation aid.	18*
(2) Landscape and Nurseryman	Produces and sells landscape plants, constructs and sells landscape designs, and maintains finished landscape plantings.	24*
(3) Elevator and Farm Supplyman	Works in the feed grain and farm supply industry as feedmen, grainmen, salesmen or manager.	18*
(4) Floriculturist	Works in production, floral design, and marketing of flowers and related products.	24*
(5) Farmer	Produces, harvests, and markets agricultural products using the latest scientific developments and management techniques.	8

*On-the-job training required.

MACHINE, BENCH, AND STRUCTURAL TRADES

(1) Machinist	Sets up and operates machine tools; fits and assembles parts to make or repair metal parts, mechanisms, tools or machines.	24
(2) Auto Mechanic	Repairs and overhauls automobiles, buses, trucks, and other automotive vehicles using hand tools, power tools and testing instruments.	4-12
(3) Heavy-Equipment Repairman	Diagnoses mechanical failures and repairs heavy-equipment, tractor or truck units, such as motors, transmissions and differentials according to manual or factory specifications. Uses hand tools, power tools and testing instruments.	18
(4) Automobile Service Mechanic	Performs minor repair and tune-up of motor vehicles; replaces and adjusts fuel, electrical, cooling and braking system components, using hand tools.	18
(5) Printer	Sets and assembles type and cuts in chases for printing articles, or composes type by operating various type-casting machines.	24
(6) Radio and TV Serviceman	Repairs and adjusts radio and television receivers, using hand tools and electronic testing instruments.	12-21
(7) Heating and Refrigeration Mechanic	Installs and repairs industrial, commercial or domestic refrigerating, cooling and heating systems, using knowledge of heat transfer and refrigeration, structural layout, and function and design of components.	18
(8) Welder	Welds metal parts together, as specified by layout diagram, work order, or oral instruction, using both gas or brazing and any combination of electric arc welding processes.	1-25

*Apprenticeship also available.

Skilled Trades

OCCUPATION	NATURE OF WORK	REGISTERED APPRENTICESHIPS Length of Program
Bricklayer	Lays building material, such as brick, structural tile, and concrete cinder, etc., to construct or repair walls, partitions, archs, sewers, and other structures.	3 yrs.
Carpenter	Constructs, erects, installs, and repairs structures and fixtures of wood, plywood, and wallboard, using carpenter's handtools and power tools.	4 yrs.
Cement Mason	Smooths and finishes surfaces of poured concrete floors, walls, sidewalks, or curbs to specified textures using handtools, including floats, trowels and screeds.	3 yrs.
Electrician	Plans layout and installs and repairs wiring, electrical fixtures, apparatus, and control equipment.	4-5 yrs.
Floor Coverer	Applies blocks, strips, or sheets of shock absorbing, sound deadening or decorative covering to floors, walls and cabinets.	3-4 yrs.
Glazier	Installs glass in windows, skylights, store fronts, and display cases, or on surfaces, such as building fronts, interior walls, ceiling, and tabletops.	3 yrs.
Lather	Fastens wooden, metal, or rockhead lath to walls, ceilings, and partitions of buildings to provide supporting base for plaster, fire-proofing, or acoustical material.	2-3 yrs.

OCCUPATION	NATURE OF WORK	REGISTERED APPRENTICESHIPS Length of Program
Operating Engineer	Operates several types of power construction equipment, such as compressors, pumps, hoists, derricks, cranes, shovels, etc., to excavate and grade earth, erect structural and reinforcing steel, and pour concrete.	3-4 yrs.
Painter-Decorator	Applies coats of paint, varnish, stains, or enamel to decorate and protect interior or exterior surface, trimmings, and fixtures of buildings and other structures.	3 yrs.
Plasterer	Applies coats of plaster to interior walls, ceiling, and partitions of buildings to produce finished surface.	3-4 yrs.
Plumber, Pipe-Fitter	Lays out, fabricates, assembles, installs, and maintains piping and piping system, fixtures, and equipment for steam, hot water, heating, cooling, lubrication, and industrial processing systems.	4-5 yrs.
Roofer	Covers roofs with roofing material, such as composition shingles on sheets, wood shingles or asphalt and gravel, to make them waterproof.	2-3 yrs.
Iron Worker, Erector	Performs duties to raise, place, and unite girders, columns, and other structural steel members to form completed structures or structure frameworks, working as a member of a crew.	2-4 yrs.
Sheetmetal Worker	Fabricates, assembles, installs, and repairs sheet metal products and equipment, such as drainage, ventilators, and furnace castings.	3-4 yrs.
Sprinkler Fitter	Installs, services, and repairs piping and fixtures used in fire sprinkler system, including all hydrant pump, and sprinkler head connections.	4-5 yrs.
Tile and Terrazzo Worker	Applies tile to walls, floors, ceilings following design specifications. Applies cement, sand, pigment, and marble chips to floors, stairways, and cabinet fixtures to attain durable and decorative surfacing according to specifications and drawings.	3 yrs.
Automobile Body Repairman	Repairs damaged bodies and body parts of automobile vehicles, such as automobile and light trucks.	3-4 yrs.
Automotive Mechanic	Repairs and overhauls automobiles, buses, trucks, and other automotive vehicles.	3-4 yrs.
Blacksmith	Forges and repairs variety of metal articles, such as tongs, edged tools, fixtures, and agricultural implements as specified by work orders, diagrams, or sample parts.	4 yrs.
Boiler Maker	Assembles, analyzes defects in, and repairs boilers, pressure vessels, tanks, and vats in the field, following blueprints and using handtools and power tools.	4 yrs.
Engraver	Engraves monograms and ornamental designs on glass and glassware, engraves lettering or designs in copper or steel printing plates, using engraving machinery.	4-5 yrs.
Heat-Treater	Controls heat treating furnaces and quenching equipment to alter physical and chemical properties of variety of metal objects by methods of controlled heating and cooling.	4 yrs.
Heavy-Duty Equipment Mechanic	Analyzes malfunctions and rebuilds, repairs and adjusts heavy-construction equipment, such as cranes, power shovels, scrapers, rock crushers, and bulldozers.	3-4 yrs.
Machinist	Sets up and operates machine tools, and fits and assembles parts to make or repair metal parts, mechanisms, tools, or machines, applying knowledge of mechanics, shop mathematics and metal properties.	4 yrs.
Molder, Core-maker	Forms sand molds for production of metal castings, using handtools, power tools, patterns and flasks. Makes sand cores used in mold to form holes or hollows in metal castings.	4 yrs.
Model and Pattern-Maker (Metal)	Makes models by hand from plastic materials according to prepared design. Lays out, machines, fits and assembles castings and parts to make metal foundry patterns, care boxes, and match plates.	4 yrs.
Tool & Die-Maker	Analyzes variety of specifications, lays out metal stock, sets up and operates machine tools, fits and assembles parts to make and repair metal working dies, cutting tools, and machinist's handtools.	4 yrs.
Book Binder	Binds covers to books or pamphlets, and performs book finishing operations.	4 yrs.
Compositor (Printer)	Sets type by hand and machine, and assembles type and cuts in a galley, for printing articles, headings, and other printed material.	5-6 yrs.

OCCUPATION	NATURE OF WORK	REGISTERED APPRENTICESHIPS Length of Program
Electrotyper	Fabricates and finishes duplicate electrotype printing plates according to specifications, using handtools, electroplating equipment and metal casting machines.	5-6 yrs.
Lithographer	Sketches designs and numbers on metal, stone, or glass with or without specifications, and engraves plates for printing scale parts, using lithographic, photoengraving, and photolithographic techniques.	4-5 yrs.
Mailer	Mails or dispatches newspapers, periodicals, envelopes, cartons, or other bulk printed matter.	4-5 yrs.
Photo-engraver	Photographs copy, develops negatives and prepares photosensitized metal plates, such as copper, zinc, and aluminum for use in printing	5-6 yrs.
Printing Pressman	Sets up and operates rubber cylinder handpress to print scale charts from zinc and lithograph plates.	4 yrs.
Stereotyper	Operates machines to press face of composed type and plates into wood-fiber mat to form stereotype casting mold, pour molten metal into mold, and finish casting by cutting and trimming to form plates for printing.	5-6 yrs.
Baker	Mixes and bakes ingredients according to recipes to produce breads, pastries, and other baked goods.	3 yrs.
Butcher, Meat-Cutter	Performs all slaughtering and butchering operations in a slaughtering and meat packaging establishment, using such cutting tools as a cleaver, knife and saw.	3 yrs.
Cabinetmaker	Constructs and repairs wooden articles, such as store fixtures, office equipment, cabinets, and high-grade furniture, using woodworking machines and handtools.	3-4 yrs.
Draftsman-Designer	Prepares clear, complete, and accurate working plans and detail drawings from rough or detailed sketches or notes for engineering or manufacturing purposes, according to specified dimensions.	3-5 yrs.
Cable Splicer	Splices overhead, underground, submarine, multiple-conductor cables used in telephone and telegraph communications and electric-power transmission systems.	4 yrs.
Lineman	Installs and repairs telephone and telegraph lines (wires and cables) according to diagrams, and using electrician's handtools.	4 yrs.
Maintenance Mechanic (Machine Repairman)	Repairs and maintains, in accordance with diagrams, sketches, and manufacturer's specifications, machinery and mechanical equipment.	4 yrs.
Mill Wright	Installs machinery and equipment according to layout plans, blueprints, etc., in an industrial establishment, using hoists, handtools, and power tools.	4 yrs.
Optical Technician	Designs mechanical portion of precision optical instruments, such as aerial cameras, spectrophotometers, and refractometers.	4 yrs.
Dental Technician	Constructs and repairs dental appliances, according to dentist's prescription.	3-4 yrs.
Painter (Except Construction)	Does production and industrial painting and preparation by hand or spray means.	3 yrs.
Photographer	Performs artistic and technical operations using a variety of complicated camera and development equipment.	3 yrs.
Stationary Engineer	Operates and maintains stationary engines and mechanical equipment, such as steam engines, air compressors, motors, and turbines.	3-4 yrs.
Telephone Lineman	Erects wood poles and prefabricated light-duty metal towers, cable, and related equipment to construction transmission and distribution.	4 yrs.
Wood Pattern and Model Maker	Plans, lays out, and constructs wooden unit or sectional patterns used in forming sand molds for castings, analyzing blueprints and using handtools.	5 yrs.
Upholsterer (furniture)	Repairs and rebuilds upholstered furniture, using handtools and knowledge of fabrics and upholstery methods.	3-4 yrs.
Marking Device Maker	Selects metal, cuts to prescribed sizes, prepares for concave and convex engraving, traces designs.	2-3 yrs.

OCCUPATION	NATURE OF WORK	REGISTERED APPRENTICESHIPS Length of Program
Machinist (Repair-Industrial)	Determines the cause and repairs breakdowns in a wide variety of industrial machines.	4 yrs.
Pipefitter (Industrial)	Lays out, fabricates, assembles, installs, and maintains piping and piping system, fixtures, and equipment for steam, hot water, heating, cooling, lubrication, and industrial processing systems.	4-5 yrs.
Electrician (Railroad)	Maintenance, repair and overhaul of electrical equipment, on diesel-electric locomotives, railroad passenger cars, railroad freight cars, electrical and electronic equipment, automated freight car classification yards, communications systems.	4-5 yrs.
Railroad Carman	Maintains, repairs, builds, and overhauls various types of freight and passenger railroad cars.	4-5 yrs.
Machinist (Railroad)	Maintains, repairs, rebuilds, overhauls, and manufactures various types of railroad motive power equipment, principally diesel-electric locomotives.	4-5 yrs.
Sheet Metal Worker - Pipefitter (Railroad)	Maintenance, repair, overhaul of related equipment on diesel-electric locomotives, railroad passenger and freight cars, as well as maintenance of plant equipment dealing with heat, water, gas, steam and air-conditioning.	4-5 yrs.

We acknowledge with thanks permission of Michigan State University to reprint portions of Career Opportunity Guide I by Robert Anderson, et al, which forms the basis for bulletin.

Appendix C

BUSINESS AND TRAINING NEEDS SURVEY

Confidential Questionnaire on Manpower Requirements and Training Preferences

Dear Employer:

This survery is part of the Vocational-Technical Study being conducted in the Crawford, Ogemaw, Oscoda, and Roscommon counties and sponsored jointly by the secondary schools, the intermediate school district, and Kirtland Community College.

The questionnaire will help answer such questions as:

- What are the manpower needs of the businesses in the COOR area?
- How well are the high schools providing the training required at the present time?
- What kinds of courses, programs, and services can the community college provide that will be helpful to the employers of the area?

Sound planning must be based on an accurate estimate of occupational and employment needs of the future. We are asking your help in providing the data necessary for this planning. Your reply is confidential and will appear only in summary totals. Most businesses will need to take only about 20 minutes to answer the questionnaire. Upon completion please return it to the person who gave it to you or in the envelope provided. Thank you for your help and support.

Cordially yours,

BUSH-GOENNER ASSOCIATES

INSTRUCTIONS

The questionnaire is divided into twelve categories, such as "Clerical Occupations ," "Manufacturing Occupations," etc. The occupations represented by your employees may be clustered on one page or scattered over several.

Column 1--Occupation: This is a listing of occupations within each category. Since this survey is concerned with education for those who likely will not be college graduates, occupations generally requiring a Bachelor's degree or more are not listed. A space is provided at the foot of this column to write in an occupation we may have neglected.

Column 2--Number now employed: Enter the number of male workers and female workers in each occupation who have been on your payroll during the current month.

Column 3--Number current vacancies: Enter the number of vacancies in each occupation that you are currently trying to fill.

Column 4--Estimated number needed in next five years: Enter your best estimate of the number of expansions and replacements needed in each occupation by April, 1972. Keep in mind such factors as expected business volume, changes in operating or production methods, new or discontinued products or services.

Column 5-- Estimated additional number needed during each summer or periodically on a part-time basis: Enter your best estimate of the number added each summer if your business is associated with summer recreation. If the additions are for any other short term activity, such as skiing or "Tip-up Town" please enter, star (*) and explain at the bottom of the page.

Column 6--Is this a "hard to fill" job?: Answer yes or no based upon your own experiences with this occupation.

Column 7--Usual recruitment sources: Check one or more of the sources from whom you normally recruit workers in this occupation.

Column 8--Educational preference: Check the one column which you feel would give your employees good preparation for this occupation.

Column 9 and 10--Self explanatory.

Confidential

BUSINESS AND TRAINING NEEDS SURVEY

Confidential

Name of Company

Name of Person Completing Form

Principal Product or Service

Address of Company

Title of Person Completing Form

Total Number of Employees

A. CLERICAL OCCUPATIONS

1. OCCUPATION	2. Number now employed		3. Number Current Vacancies	4. Estimated number needed in next five years (full time).		5. Estimated additional number needed during each summer	6. Is this a 'hard to fill' job?		7. Usual Recruitment Sources			8. EDUCATIONAL PREFERENCE (check one)					9. Do you have your own training program in this occupation?		10. Would you be interested in additional training for these workers in an area school?	
	Male	Female		Expansion	Replacement		Yes	No	Upgrade Present Employees	Area Agencies and Institutions	Out-of-area Agencies and Institutions	Less than High School Graduate	High School Graduate	Vocational or trade school graduate	Business College Technical Institute Community College Terminal Graduate	College Graduate	Yes	No	Yes	No
001. Accountant																				
002. Bank Clerk																				
003. Bookkeeper																				
004. Cashier																				
005. Claim adjuster																				
006. Clerk-typist																				
007. Electronic data processing operator																				
008. General office worker																				
009. Hotel/motel room clerk																				
010. Office machine operator																				
011. Office manager																				
012. Postal clerk																				
013. Receptionist																				
014. Secretary																				
015. Shipping and receiving clerk																				
016. Stenographer																				
017. Stockboy																				
018. Teller																				
019. Other (write in)																				

Remarks:

B. SALES OCCUPATIONS

020. Buyer
021. Consultant
022. Insurance Agent or Broker
023. Manufacturer's Sales Representative
024. Retail Salesperson
025. Real Estate Salesman or Broker
026. Route Salesman
027. Sales Manager
028. Wholesale Salesman
029. Other

C. SERVICES OCCUPATIONS

030. Baker
031. Bakery Helper
032. Bakery Icer
033. Barber
034. Bartender
035. Beautician
036. Bellboy
037. Busboy
038. Cafeteria Counter Attendant
039. Cook or Chef
040. Dishwasher
041. Dressmaker
042. Fireman
043. Florist
044. Gardener
045. Hotel/Motel Housekeeper
046. Janitor
047. Kitchen Helper
048. Laundry and Dry Cleaning Worker
049. Mail Carrier
050. Meatcutter
051. Plant Security Guard
052. Policeman
053. Radio and TV Announcer
054. Radio and TV Station Engineer
055. Restaurant Manager
056. Seamstress
057. Service Station Manager
058. Stationary Engineer
059. Tailor
060. Waiter/Waitress
061. Other

D. HEALTH CARE OCCUPATIONS

062. Dental Office Assistant
063. Dental Hygienist
064. Dietitian
065. Medical Office Assistant
066. Medical Lab Technician
067. Nurse (Practical)
068. Nurse (Registered)
069. Nurse's Aide
070. Orderly
071. X-Ray Technician
072. Other

E. MANUFACTURING OCCUPATIONS

073. Assembler
074. Beater Operator
075. Chemical Technician
076. Coremaker
077. Corrugator Operator
078. Die Maker
079. Digester Operator
080. Draftsman
081. Drafting and Design Technician
082. Electroplater
083. Foreman
084. Forge Operator
085. Inspector
086. Instrument Maker
087. Instrumentation Technician
088. Layout Man
089. Machine Operator
090. Machine Tool Operator
091. Machinist, All-Round
092. Metallurgical Technician
093. Molder
094. Paper Machine Operator
095. Patternmaker
096. Power Truck Operator
097. Printer-Slotter Operator
098. Production Control Technician
099. Production Painter
100. Quality Control Technician
101. Setup Man
102. Stationary Fireman (Boiler)
103. Time Study Technician
104. Tool Maker
105. Tool Room Attendant
106. Welder and Flame Cutter
107. Other
108. Other

F. MECHANICS & REPAIRMEN OCCUPATIONS

109. Air-Conditioning, Refrigeration and/or Heating Mechanic
110. Air-Conditioning, Refrigeration and/or Heating Technician
111. Appliance Repairman
112. Automobile Mechanic
113. Aviation Mechanic
114. Business Machine Serviceman
115. Diesel Mechanic
116. Electronic Technician
117. Industrial Machinery Repairman
118. Instrument Repairman
119. Maintenance Electrician
120. Millwright
121. Shoe Repairman
122. Television and Radio Repairman
123. Watch Repairman
124. Jeweler and Jewelry Repairman
125. Other

G. BUILDING TRADES OCCUPATIONS

126. Architectural Draftsman
127. Bricklayer and Mason
128. Cabinet Maker
129. Carpenter
130. Civil and Highway Technician Surveyor
131. Electrician
132. Floor Covering Installer
133. Glazier
134. Heavy Equipment Operator
135. Ironworker
136. Laborer
137. Painter
138. Paperhanger
139. Plasterer
140. Plumber and Pipefitter
142. Sheet Metal Worker
143. Supervisor
144. Tile Setter
145. Other

H. GRAPHIC ARTS & PRINTING OCCUPATIONS

146. All-Round Printer
147. Bookbinder
148. Commercial Artist
149. Compositor
150. Electrotyper
151. Linotype Operator
152. Lithographic Cameraman
153. Monotype Operator
154. Phototypesetting Operator
155. Photoengraver
156. Pressman
157. Stereotyper
158. Other

J. TRANSPORTATION OCCUPATIONS

159. Ambulance Driver
160. Brakeman
161. Bus Driver
162. Conductor
163. Dispatcher
164. Locomotive Engineer
165. Locomotive Fireman
166. Signal Department Worker
167. Station Agent
168. Taxi Driver
169. Tracks Worker
170. Truck Driver (Local)
171. Truck Driver (Over-the-Road)
172. Other

K. UTILITIES OCCUPATIONS

173. Electrical Technician
174. Installer and Repairman (Telephone)
175. Installer and Repairman (Meter)
176. Lineman and Cable Splicer
177. Meter Reader
178. Power Plant Operator
179. Substation Operator
180. Telephone Operator
181. Water Department or Sanitation Worker
182. Other

L. AGRICULTURAL OCCUPATIONS

183. Farm Owner - Manager
184. Laborer
185. Nurseryman
186. Packer
187. Poultryman
188. Other

Appendix D

Volunteers for Citizens Advisory Committee

FAIRVIEW

Opal M. Fullerton
Fullerton Pharmacy

Rev. John W. Miller
Michi-Lu-Ca

GRAYLING

John H. Alef
Grayling State Bank

Lyle D. Billsby
Mich. State Liquor Comm.

E.R. Burns
Burns Hdwe. & Furniture

Mildred Chew
Chew Real Estate Sales

Art Clough
Art Clough Real Estate

Beatrice Cornell
Cornell Agency, Inc.

R.P. DuBois
DuBois Lumber Co.

William Fitzgerald
Bills Barber Shop

Mrs. James Forbes
Western Union Forbes Motel

Don K. Gothro
Grayling Lbr. & Supply, Inc.

Clarence Gross
Clarence Gross Barber Shop

C.R. Holcomb
Holcomb Realty Co.

Mrs. Cyril Houle
Woodland Motel

Chet Johnston
Cadillac Overall Sup. Co.

Bill Joseph
Grayling Mercantile Co.

Clarence LaMotle
Curly's Drive In, Inc.

Walter Layman
Grayling Dairy Queen

Alan D. Leng
Wm. Leng Garage

Richard Lepsy
Glen's Market #3, Inc.

Letha A. Long
Post Office

Phyllis Long
Tip Top Togs

E.A. Lowrie
Stephan Wood Products, Inc.

Gerald A. McEvers
McEvers Motor Sales, Inc.

Ted R. McEvers
State Farm Ins. Agency

Larry McNamara
Mac's Drug

Clair D. Melroy, Jr.
Clairs Standard Service

Clare Melroy, Sr.
Melroy's Service

Charles R. Moore
Motel Marshall

Melvin K. Nielson
The Grayling Ins. Agency

Jane Ann Patchok
The Pink Lady

Beatrice Rowland
Rowland's Seamless Coverings

Harvey J. Rowland
Grayling Lumber & Supply, Inc.

Ralph Sarrault
Fredric Inn

Raymond Slusser
Grayling Radio & T.V.

Robert Springs
Bob's Body Shop

Joseph Stripe
Crawford AuSable School

Mitchell Thompson
Lyon General Store

Jack Trudgeon
Borchers Canoe Livery

Flora M. Vigneaux
Bennett Motel

Hal Walker
Grayling Bottling Co., Inc.

L.O. Welch
Baringer's Men's & Ladies Apparel

Fred C. Welsh
Welsh Motor Sales

Carrol D. Wert
Wert's Lone Pine Inn

Jack Wooley
Bird's Nest Antiques

Mildred Ziegler
The Cottage Shop

HOUGHTON LAKE

Jack Allen
Kens Fishing Supply

John Alton
Houghton Lake Post Office

Vern Andersonn
Houghton Lake Block Co.

Lola Bowman
Bowman's General Store

Don Boyer
North Shore Septic Service

Walter Creason
Grand Motel

Terry Elshaltz
Terry's Pharmacy

Harold G. Forman
Forman Insurance

Ted Garlbraith
Commercial Services, Inc.

Art Gonzales
Lynns Home Entertainment Center

Robert Hamp
Reporter (Newspaper)

Virgil Hunter
LeRoys Produce

Terry Hutson
Bill Hutson Insurance

Francis Kinne
Williams-Ford, Inc.

Robert LeMirs
First National Bank

Dr. V.M. McClintic
McClintic Optometrist

James McGuire
Houghton Lake Comm. School

Milton Marks
Mr. Chicken

Lantz Michelson
Lant'z Dairy Delight

Archie Moore
Hub Super Market

Mueller
Mueller-Devereaux Chev.

Jim Nielson
Nielsons Standard Service

Jim Paulies
Northway Bowling Bar

Norm Pike
WHGR

Pruett
Spartan Store

Pinky Randall
Pinky's IGA

Mrs. Robert Sohn
Sohn Supply & Laundromat

Sid Sutton
Roscommon State Bank

Dave Suzor
Suzor Houghton Lake Animal Hosp.

Francis L. Walsh
Francis L. Walsh, Attorney

Adeline Weld
Weld's Hardware

Mrs. Wenig
Bob's Sporting House

MIO

Roy Arbaugh
Arbaugh Ref. & Heating

Bob Bills
Bob Bills - Builder

Mr. Boener
Weaver Trucking, Inc.

Dell Boyer
Boyer Machine Tool & Eng., Inc.

Norm Caldwell
Norm Caldwell

Jack Cournyer
Oscoda County News

James F. Dennis
General Telephone Co.

Tim Galbraith
Tim Galbraith Farm

Bob Graham
Graham's Real Estate

Jim Hardy
Lost Creek Sky Ranch

Helen Harrigan
Mio - Au Sable Agency

Kurt Johnson
Glen's Standard Service

Fred Klimmek
Pioneer Chain Saw Sales & Ser.

Jim Lemon
Lemon's Cleaning Service

Jeanne Luitenbacher
Talk O The Town

Mr. McCoy
McCoy's I.G.A.

Mr. Miller
Au Sable Auto Supply

Dennis Morse
Morse Standard Service

Don Oliver
Oliver's Sales & Service

Don Parks
Parks Builders

Russ Spalding
Mio Au Sable School

Paul Starry
Sportsland

William Troyer
Troyer Upholstering

Mrs. Tewksbury
Vern's A.& W.

Ray Willet
Pauls Shell Service

Orson Sheerwood
Roscommon State Bank

ROSCOMMON

Wesley Alschback
Winnies Tavern

Tom Barber
Tom's Self Service Laundry

Thomas E. Barber
Barber Plumbing & Heating

Herschel Campbell
Campbell Canoe Livery

Noni Carter
Michigan Dept. of State

Chas. Conway
Eagles Nest Cottages

Arthur B. Cronin
State Dept. of Conservation

Marland E. Dutton
McConkey Dry Goods

James Fisher
Roscommon Dairy Queen

G. Gyde
Gyde Grocery

Basil Hubbell
Hiawatha Canoe Livery

E.L. Hulce
Gerrish-Higgins S/D

W.G. Ingleson
North Central State Employees
Credit Union

Wm. Ingleson
Michigan Life Ins. Co.

Thomas Keipert
Price Mart

F. Kelly
Kelly Real Estate

Don Lance
Lance Ins. & Real Estate

M. Lance
Dept. Social Services

E. McCredie
McCredie Real Estate

Mel McCutchion
Kelly & Associates

Fred Martindale
Fred's Tavern

Raoul J. Meyer
Meyer's Service

James Rutledge
J. Rutledge-Att. At Law

Ford Selsby
Au Sable Store

Jake Steele
Steele Bros.

D. Stough
Ye Olde Country Club

Wm. Taylor
Taylor Real Estate

W.C. Wagner
Wagner Hardware

ROSE CITY

Wm. S. Ekhler
Northern Business Service

W.A. Fisher
Case-Master Body, Inc.

WEST BRANCH

Bob Brown
Brown's Restaurant

Francis Bumbalough
Souvenir Shop - St. Helen

David Golden
Golden's Shoe Store

E. Gould
State Savings Bank

Harold Gould
Gould Drug Store

Mrs. Paul Lebzelter
Ivy Shop

Chester Lurline
West Branch-Rose City Area Schools

Loren Parliament
Parliament Drugs

Mrs. Shumaker
Shumakers Dime Store

Shirley Steckling
Steckling Bros., Inc.

John Tobin
W.B. Metal Products